# Amateur Radio

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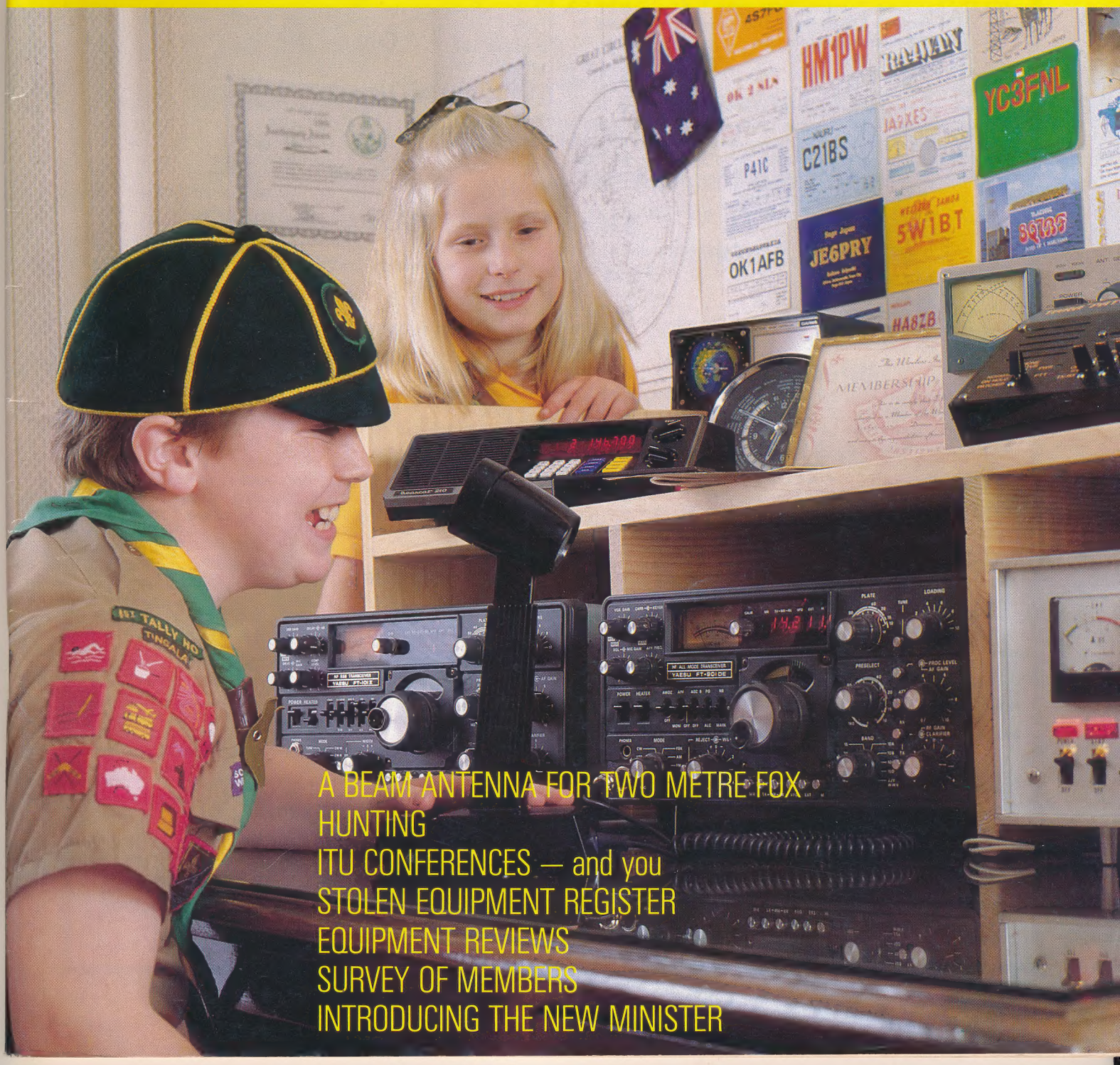


A BEAM ANTENNA FOR TWO METRE FOX HUNTING
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# Amateur Radio

—Photograph courtesy June Chapman, RMIT Photography Student

**COVER PHOTOGRAPH: Melissa Hawkins, 9, of the 1st Blackburn South Brownie pack and Tony Linton, 10, of 1st Tally Ho Cub Scout pack. Both are Grade 4 students at St Thomas's Primary School, Blackburn, in Melbourne's eastern suburbs. Melissa hopes to join the Cub Scouts following the recent decision by the Scouting Movement to have girls in the Cub Scouts and Scouts. Tony is a WIA Associate member and is eager to obtain his Novice licence and has begun learning the basics and Morse code. This is his third JOTA in a row, both at the microphone and building electronic kits. Melissa and Tony were operating with the assistance of Jim Linton VK3PC, (just out of camera range) in his shack.**

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**DEADLINE**

All copy for inclusion in the December 1988 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by 9 am, October 15, 1988.


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# Amateur Radio

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**EDITOR**
BILL RICE* VK3ABP

**NEWS EDITOR**
JIM LINTON VK3PC

**TECHNICAL EDITING CO-ORDINATOR**
PETER GIBSON* VK3AZL

**TECHNICAL EDITORS**
EVAN JARMAN* VK3ANI
DOUG MCARTHUR* VK3UM
GIL SONES* VK3AUI

**MARKETING**
BRUCE KENDALL* VK3WL

**CONTRIBUTING EDITORS**
Frank Beech VK7BC
Joy Collis VK2EBX
Brenda Edmonds VK3KT
Ron Fisher* VK3OM
Gilbert Griffith VK3CQ
Ken Hall VK5AKH
Roy Hartkopf* VK3AOH
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Colin Hurst VK5HI
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**MEMBERSHIP AND CIRCULATION MANAGER**
Helen Wageningen

**ACCOUNTS AND ADVERTISING MANAGER**
June Fox

Inquiries and material to:
The Editor,
PO Box 300,
Caulfield South, Vic. 3162.

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**Acknowledgment may not be made unless specifically requested. All important items should be sent by Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.**

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**Opinions expressed by individuals are not necessarily those of the Wireless Institute of Australia.**

# Editor's Comment

## THEM AND US

This month's remarks have been triggered off by two things, which are themselves closely related. One is the tendency we all have to form some kind of alliance with those who most resemble ourselves, and collectively to proclaim our opposition to those who differ in any way from our ideal. Specifically, over the last few months it has been objection by some full call licensees to the proposal, now fact, that Novices should be permitted to use two-metres FM (even with a 10 watt power limit).

Without even once straying from the field of amateur radio, I am sure I can nominate dozens of examples of this "them and us" attitude. Back in the era when our hobby (activity, obsession?) began, it was probably spark versus CW. Later, it was CW telegraphy versus the phone upstarts. Later still, AM versus SSB. HF versus VHF. In the 1950s a spirited exchange of letters ran for months in the "Letters" pages of AR, in which those with "real licences" objected violently to the introduction of the "half call" Limited licence. The blighters didn't even have to know the Morse alphabet! The Editor of those days had to terminate the correspondence eventually, or it might have gone on for years!

To continue, we now have packet versus phone nets; DX versus rag-chewing; the QRPers who try to work the world with milliwatts and the QROers who don't think it's worth trying with less that the legal limit. The third party traffic net people and those to whom TPT is an immoral monstrosity! Those who live for contests, and those who can't stand them! Even on the one band (two-metres) we have the SSB DXers at the low end not only scorning those who use FM repeaters at the high end, but dismissing them as being of low technical competence! I have a letter awaiting reply in which a member objects to my claim in the July "Comment" that Novices can now talk to VHF/UHF enthusiasts on 2FM. According to him, there is no technical knowledge to be found there! I would be the last person to suggest that all 2FM operators are "founts of wisdom", but to claim that Novices will learn nothing useful from any of them! Barley, Charley!

At an organisational level, we have the obvious distinction between members and non-members, but on more subtle levels there are varying sympathies and antipathies between Divisions, between some Divisions and the "Feds", between members and their Councils. Perenniaily, the WIA and the DOTC maintain a dialogue which is more harmonious sometimes then others!

A few weeks ago I overheard (on 40 metres) a member disagreeing with my editorial about Novices on Two, and saying he would write to "Over to You!" to voice his dissension. The other operator in the QSO suggested that perhaps "The Editor" would not publish the letter, "and of course it must be remembered that the Editor is under the control of Federal Executive". I refrained with difficulty from breaking-in! I think it is more to the point to say here that in my four years so far as Editor I have never once been directed as to what we should or should not publish or what I should or should not say. But of course I am a member of Executive myself! Another "them and us"? The Publications Committee may discuss and resolve, but no one is directed other than by amicable consensus.

In another four or five years there will be a World Administrative Radio Conference at which the future of the Amateur Service will again come under the international microscope. The WIA is beginning to prepare for it now. At that Conference it is essential that all the world's amateurs speak with one voice. We can no longer allow our splinter groups and differences to divide us. "They" (the rest of the world) will not listen to "us" if we are a babel of individual voices. We have two things in common. We are all radio amateurs, and we are all vitally interested in retaining our portions of the spectrum. It is imperative that "we" or "us" in this context must mean nothing less than a united front by all the world's radio amateurs. The alternative may well be the end of amateur radio!

Bill Rice VK3ABP
Editor

ar


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# SURVEY

When you turn to the centre pages of this edition of *Amateur Radio* magazine you will find the previously announced Amateur Radio Magazine Readers and WIA Membership Survey.

This survey is designed to gather demographic information about the readership of the magazine, your input into issues relating to the cost of the magazine and, most importantly, direct feedback from you, the member, about current WIA performance and its future direction.

This survey has two main goals.

The aim of the first part of the survey is to gather data to enable the Institute to produce a statistical model of the *Amateur Radio* readership base. This information will allow us to demonstrate to potential advertisers the worth of advertising in our magazine. Few publications can do this, and certainly none within our field of interest.

The second part will be of help to the Editor and Publications Committee in their management of *Amateur Radio* magazine.

The third part of the survey results from a resolution by Federal Council to obtain feedback from all members so that planning for the future of the Institute accurately reflects the actual needs of the members.

The results of the readership profile section of the survey will have several uses.

Firstly, as part of a general marketing strategy, it will enable Executive and the Publications Committee to tailor AR better to its readers.

Secondly, it will enable us to draw advertising revenue from a wider base.

We have tried to keep the survey as brief as possible consistent with the necessity to achieve meaningful results.

Members are assured that information provided will be kept **strictly confidential** and will only be used to compile statistical information as mentioned above. After processing all forms will be shredded.

Individual data will *not* be released **under any circumstances.**

The Executive examined various ways of achieving as near to a 100 percent return rate as possible.

Options considered were:

Pre addressed envelope
Freepost
Business Reply Post

All of these options had their problems, mainly the cost.

After much discussion and deliberation it was finally decided that gifts drawn by membership number will be awarded to respondents of the survey.

The first gift will be an Alinco ALX-2T two metre FM hand-held transceiver. Now that all Australian amateurs finally have a common band, this excellent little unit, which is reviewed elsewhere in this edition of AR, should appeal to all. However, if you prefer, or if you are not a licensed amateur, the alternate first gift will be five-years free membership of the WIA.

In addition, there will be five *ARRL Handbooks* available as consolation gifts.

Some may question the reason for choosing the above method as an enticement to return the survey instead of the previously mentioned options.

The simple reason is that Freepost or Business Reply Paid envelopes would have cost more than the gifts on offer, and the members would have seen nothing for the expenditure of their money.

With the incentives offered, the WIA is saving members funds whilst, at the same time, giving members the opportunity to gain something tangible in return.

The survey has been designed to be pulled out from the centre of AR without leaving you with an incomplete issue. If you prefer, you may simply photocopy the necessary pages and return the completed photocopy. If the survey has been misplaced, or if you are a Family Member of the Institute, and you would like to participate in the survey, please contact the Federal Office.

Please note that there is no compulsion for you to insert your membership number or call sign on the returned survey. However, if you elect to remain anonymous, please understand that we will not be able to identify you if you are a gift winner.

Closing date for return of the survey, in order to be eligible for the gifts, is November 15, 1988.

Your co-operation is sought and will be appreciated.

ar

# ITU CONFERENCES — and you

by Richard Butler W1RU
President, IARU

Every decade or so the International Telecommunication Union (ITU) holds a full-scale telecommunications conference, one which looks at every aspect of the International Radio Regulations. This is called a General WARC (General World Administrative Radio Conference), and while there are many aspects of such a conference which can have an effect on the amateur and amateur-satellite services, we are particularly concerned about the table of Frequency Allocations.

The last General WARC was in 1979. Since then there have been a number of specialised WARCs, each dealing with some specific radio service or problem area. For instance, in the past couple of years there have been High Frequency Broadcasting WARCs, and Mobile WARCs, and geostationary satellite WARCs. Each of these has a specific and detailed agenda which is agreed to ahead of time, and the work of the conference is not supposed to go beyond the bounds of that agenda. In other words, an HF BC WARC is supposed to deal only with the problems of the High Frequency Broadcasting Service, within the frequency allocation for that service which were established at the General WARC of 1979.

But life gets more complicated, and after a while there comes a time when the administrations begin to believe they can no longer solve the problems of a particular service within the confines of the frequency bands already allocated. Then there begins to be pressure for another General WARC, and some reallocation of the spectrum. And reallocation means that if one service gains some frequencies, another service has to lose.

There were two specialised WARCs during 1987, and out of both came recommendations that there be some sort of a General WARC no later than 1992. The high frequency broadcasting people believe that their channel needs of today cannot be solved within the bands presently allocated to the HF BC Service. As a result of the Mobile WARC held during September and October there were several recommendations that certain problems beyond the scope of the agenda of the conference be referred to a "competent" WARC (which means some form of a General WARC) to be held no later than 1992. And so the handwriting on the wall gets clearer and clearer.

The mobile WARC recently completed in Geneva ran into a number of problems in finding space for some new uses within those frequency bands allocated to the various mobile services (aeronautical, land, and maritime, including space). The agenda of the conference did not permit solutions to be found outside of the already-allocated frequency bands if those solutions were going to have a significant effect on another service. Even with this restriction, however, some actions taken by the Mobile WARC could have an adverse effect on the Amateur and Amateur-Satellite Services.

For example, Mexico introduced a footnote to the table of allocations which would have permitted that country to establish a land mobile service as the primary service in the band 430 to 440 MHz. The first concern of your IARU observer team at the conference (W1RU, SP5FM, I1RYS, YT7MM) was that such an allocation could have an adverse effect on the Amateur-Satellite Service segment at 435 to 438 MHz. We persuaded Mexico to change their proposal to exclude that amateur satellite segment. Our second concern was that other countries, particularly in the Americas, would join in that footnote, creating a sort of stampede. We were prepared to cope with that possibility but fortunately no other country joined Mexico.

A number of European countries added their names to a footnote which would make land mobile a primary allocation in the band 1700 to 2450 MHz. That, of course, affects another amateur band. Similarly, Cuba introduced the radio-navigation service as a primary in the band 1215 to 1300 MHz.

None of these actions is by itself catastrophic, but there is a clear indication that at the next General WARC, perhaps as early as in 1992, we may be in for a rough time in the vicinity of the HF BC bands and in the UHF/microwaves.

Fortunately, having previously read that handwriting on the wall, IARU began its preparation a couple of years ago. As in the days prior to 1979, much of the responsibility will lie with the individual member societies of IARU, to thoroughly and adequately put forward the needs and the advantages of the amateur and amateur-satellite service to their respective administrations.

We headed this article "ITU Conferences — and you." We hope that you will recognise these World Administrative Radio Conferences, generally held in Geneva, Switzerland, are really not so remote, either in distance or in concept. They have, can have, and will have an effect on your enjoyment of amateur radio. You had just better hope that your representatives are on the job!

ar

## IARU REGION III CONFERENCE

The Seventh Conference of the International Amateur Radio Union (IARU), Region III area, will be held in Seoul between October 10 and 14, 1988. These conferences are held every three years, the last one being in Auckland in 1985. The WIA will be represented by David Wardlaw VK3ADW, and Ron Henderson VK1RH.

Michael Owen VK3KI, a retiring director of Region III, who has recently moved to London for his employer, will also be there. As a director he has considerable administrative responsibilities and is not able to directly participate in the conference on our behalf.

Region III, which covers parts of Asia, Oceania and Australia, has 22 member societies. In addition to member society delegates, observers from the two other IARU Regions and the International Secretariat will be present.

Considerable effort has gone into the preparation of papers for this conference. Topics covered include:

- Bandplans
- Licence standards and procedures
- Satellites
- Beacons
- QSL Services
- Packet Radio
- Emergency communications

The papers prepared reflect not only the existing policies of the WIA, but also the recently expressed opinions of members.

In addition to the formal conference sessions, there are also many working party sessions. There are often two, three or even more, of these working parties running concurrently. Our delegates must often make difficult decisions in allocating their time between the various working parties.

Although the resolutions of the conferences are not binding on the member societies, they serve as important guidelines for the development of policies.

Listen to the WIA News Broadcasts for information on the results of the conference. A more detailed report will be prepared for the December issue of AR.

**Peter Gamble VK3YRP**
**Federal President**

ar

## THREE-YEAR MEMBERSHIP OF THE WIA

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Obviously, with inflation and fees rising each year, this facility will save you money.

ar

# RSGB 75TH ANNIVERSARY

Our immediate Past President David Wardlaw VK3ADW, has been in the UK for some months, among other things to participate in the 75th Anniversary celebrations of the Radio Society of Great Britain (RSGB). Formal congratulations have been conveyed to the RSGB by letter, and reply received from Sir Richard Davies G2XM, its President.

These letters are published below for members' interest and information.

London,
June 26, 1988

Sir Richard Davies, KCVO, CBE, C.Eng,
FIEE, G2XM,
President,
Radio Society of Great Britain,
Lambda House,
Cranborne Road,
Potters Bar,
Hertfordshire, EN6 3JE

Dear Sir Richard,

The Wireless Institute of Australia has asked me to convey to you its congratulations and very best wishes on the occasion of the 75th Anniversary of the founding of your Society.

The Institute, the oldest amateur national radio society in the world, was honoured by the presence of representatives of your Society at the celebrations marking its own 75th Anniversary in 1985. Now we can take this opportunity to say to you why we feel that we have a very special relationship and admiration for your Society.

As a Commonwealth country, we have at a National level a special relationship with Great Britain. These ties, emotional rather than legal, are very strong. Historically, as radio amateurs, we have been conscious of the distance between our two countries, and we have recognised that amateur radio has bridged those vast distances. We have also recognised the contribution of your Society in two important areas, the valuable technical contribution made to the art by your members, and the representation of the amateur service internationally, particularly to the International Telecommunications Union and by its participation in the International Amateur Radio Union.

As amateur radio faces the challenge of the future, in a world where the magic of talking across the earth has become commonplace, but in a world where the challenge of communications, in all of the meanings of that word, remain as one of the great challenges facing mankind, the amateurs of Australia extend their best wishes to the Radio Society of Great Britain, one of the great amateur radio Societies of the world.

Yours sincerely,

David A. Wardlaw

David A Wardlaw VK3ADW,
Immediate Past President, for
P H Gamble VK3YRP,

President,
Wireless Institute of Australia

July 5, 1988

Dear David,

Many thanks to you and to the Wireless Institute of Australia for your warm letter of congratulations on our 75th Anniversary. It is much appreciated by all of us at RSGB, and all the more so because of our long association.

We cherish the special relationship between us, and trust it may continue and strengthen in the years ahead.

Yours sincerely

Richard Davies

Richard Davies G2XM
President RSGB.

ar

## SUBSCRIPTION REMINDER NOTICES

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ar

# A MODIFIED HEATH CANTENNA

**David Barneveld VK4BGB**
*PO Box 275, Booval, Qld 4304*

This article is slightly different in that it has more to do with plumbing than electronics. If you have ever owned one of those Heathkit dummy loads, you will know that it gets slightly hot after extended test runs. The smell of boiling oil in the shack is rather off-putting, so this modification was done to cool things down a little.

For those not familiar with a cantenna dummy load, all it comprises is a 50 ohm carbon resistor mounted in an aluminium tube immersed in a four litre metal paint can filled with transformer oil. The tube forms a tunnel for the heated oil to travel through.

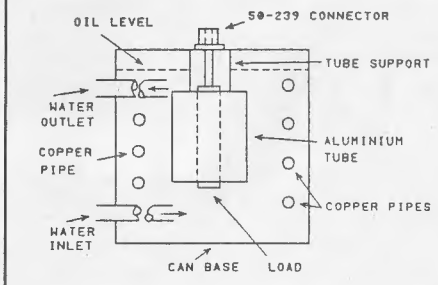
The modification simply consists of emptying the transformer oil into another container for the time being and forming a length of six millimetre copper water pipe into a series of coils which fit snugly to the inside of the can. It is a good idea to degrease the can with a solvent prior to doing this part of the modification.

The inlet connection is brought out at the bottom of the can, and the outlet at the top of the can. The two holes should only be drilled large enough to get the pipe through. The fit should be very tight. Leave approximately 25 millimetres protruding on the outside of the can and cut off with a pipe cutter or small hacksaw. Silver solder around the connections to prevent oil escaping. A tack of solder here and there on the inside will help keep the coils stay rigid.

Refill the can with transformer oil and reinsert the dummy load element. The garden hose is connected to the inlet manifold and only just cracked on so that a trickle of water comes out of the outlet pipe. A short length of plastic hose can be run from the outlet to anywhere it suits in the garden.

It was found that with the modification just described completed, that the overall temperature of the dummy load was running well below that of an unmodified version. The heat transfer characteristic increases sharply as the temperature of the oil rises, due to temperature differences between the oil and the coolant. A point worth noting here also is that care should be taken with the choice of transformer oil used in the dummy load. Whilst many types are available on the market, I personally use a grade made by Shell Oil Refinery known as Diala-B. By using the proper coolant one can rest assured that no problems will be encountered as could be the case if unknown oils are used that contain PCB materials.

ar




**Side View of the Cantenna.**

# Novice Notes

## MOSFET POWER AMPLIFIER FOR 1.8 to 10.1 MHz

**Drew Diamond VK3XU**
*"Nar-Meian", Gatters Road, Wonga Park, Vic. 3115*

There has been a wealth of projects and circuits in recent years for transmitters which have an output power of perhaps a few hundred milliwatts to two or three watts. The generally accepted maximum power level for QRP work is five watts RF, and this probably represents a level where a reasonable degree of communication effectiveness can be obtained at HF.

Designs for HF amplifiers in the five to 100 watt range can be obtained from amateur and professional literature, but the perennial problem for Australian experimenters remains; that of obtaining reasonably priced power amplifying devices.

A look at the *Power TMOS FET* book from Motorola reveals a number of devices which may be useful as RF power amplifiers, and the IRF500 series, although primarily intended for switch-mode power supply applications, appears to offer possibilities for the lower HF bands. This amplifier was empirically designed around a pair of IRF510 MOSFETs, and has the following characteristics:

Output Power: At least five watts CW, five watts PEP (typically six watts) at 13 volts supply.

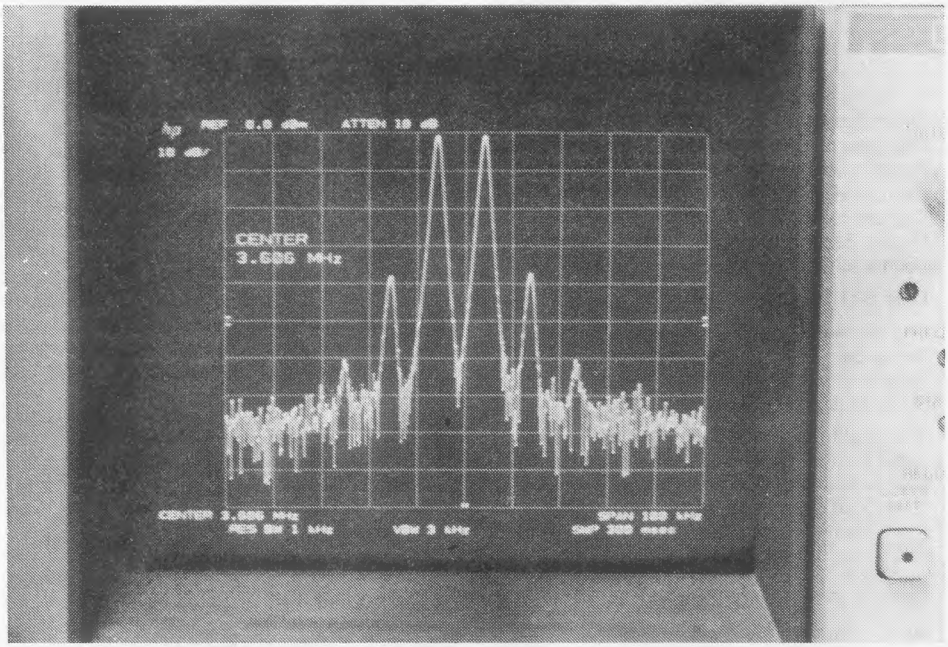
Frequency Range: 1.8 to 7 MHz, easily useful to 10.1 MHz.

Gain: About 17 dB (ie 100 mW in for five watts out).

Two-Tone IMD: At least -30 dBc*, typically -35 dBc (see photo 1).

Harmonics: At least -50 dBc (see photo 2).

Output Protection: Will withstand short or open load without damage. Remains stable regardless of load SWR.




Power Supply: Nominally +13 volts at 1 amp.

*-30 dBc means "30 dB below the carrier or wanted signal".

It is hoped that this project may interest novices and the more experienced experimenters alike (with due consideration to permitted frequencies).

**Photo 1: Amplitude versus frequency spectrum display showing IMD products at least 30 dB down on the two wanted signals spaced 10 kHz.**

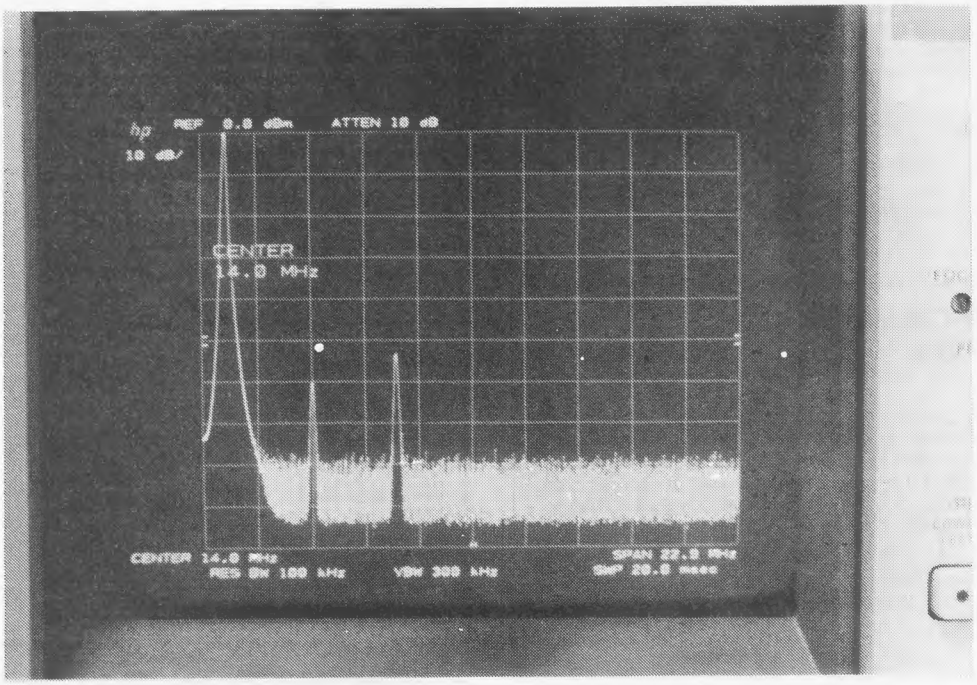



**Photo 2: Spectrum display showing output purity — all harmonics are at least 50 dB down.**

## CIRCUIT

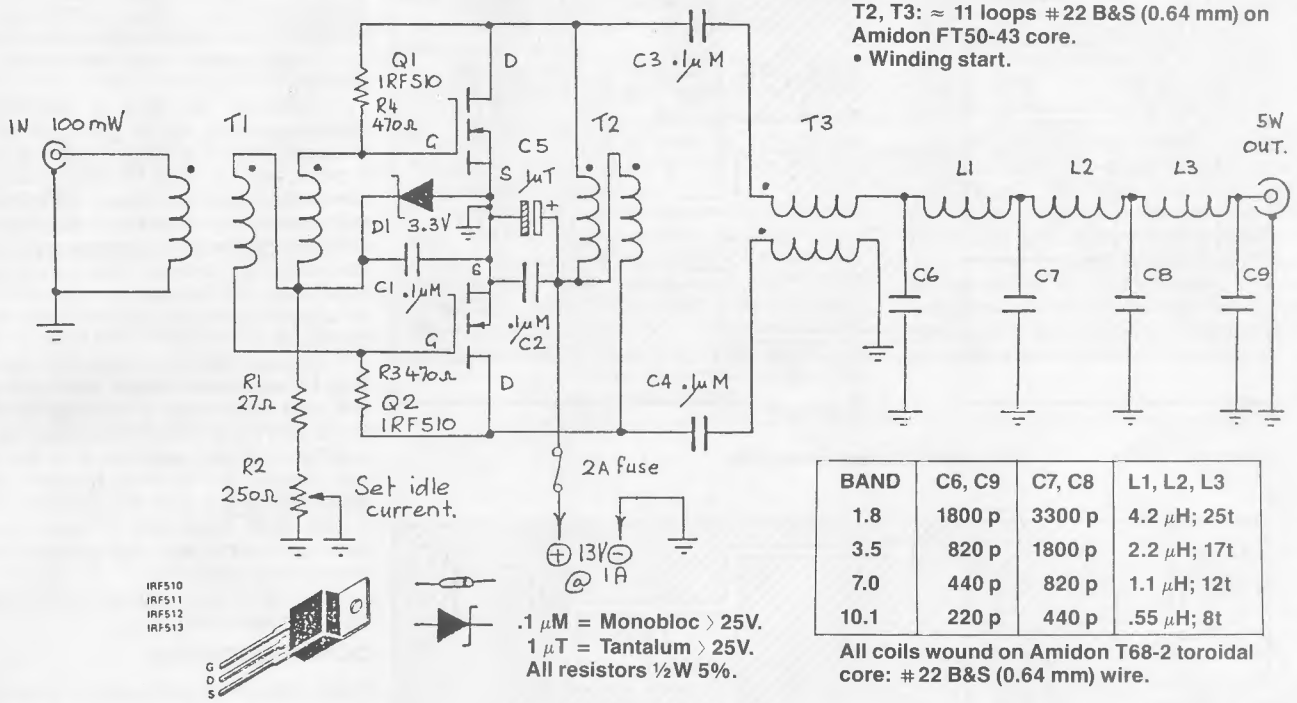
The two IRF510 MOSFETs are arranged in push-pull, class B configuration. Differential drive to the gates of Q1 and Q2 is obtained with trifilar wound broadband transformer T1. The gates are biased at about 3.3 volts, held constant by zener D1. This diode is placed in physical contact with the heatsinks of Q1 and Q2 to provide some degree of bias stabilisation; as Q1 and Q2 become warmer, the zener voltage will fall, so preventing thermal runaway under normal circumstances.

The output impedance of one device may be estimated from the standard formula;

$$Z = \frac{Vdd^2}{2Po}$$

Where Vdd is the effective drain voltage, and Po is the expected output power.

Assuming one volt drop across the source drain channel at ON giving a swing of 12 volts, and three watts output from each device, then:




| BAND | C6, C9 | C7, C8 | L1, L2, L3 |
|---|---|---|---|
| 1.8 | 1800 p | 3300 p | 4.2 µH; 25t |
| 3.5 | 820 p | 1800 p | 2.2 µH; 17t |
| 7.0 | 440 p | 820 p | 1.1 µH; 12t |
| 10.1 | 220 p | 440 p | .55 µH; 8t |

All coils wound on Amidon T68-2 toroidal core: #22 B&S (0.64 mm) wire.

**Circuit Diagram.**

$$Z = \frac{144}{6}$$
$$= 24 \text{ ohms}$$

The drain to drain impedance will therefore be 2 x 24 = 48 ohms, being so close to our required 50 ohms that no elaborate impedance transformation is necessary. T3 converts the balanced output at the drains of Q1 and Q2 to am unbalanced output for the usual 50 ohm unbalanced load. Drain current is supplied via T2, which forms a balanced choke feed arrangement. DC is blocked by C3 and C4.

Negative feedback around Q1 and Q2 is provided by R3 and R4, which stabilises the amplifier and helps level the frequency response. The bias zener is also sourced from R3 and R4, which are effectively in parallel with regard to this function.

Under some circumstances it is possible for this amplifier to produce harmonics of significant amplitude, so it is good practice (as with any solid-state amplifier) to follow the output with a low-pass filter. There is room on the circuit board for one filter, and details are provided for four amateur band filters. Multi-band operation could be provided by switching in the appropriate filter (see later).

## CONSTRUCTION

All the components of the amplifier for one band are accommodated upon a home made printed circuit board with copper both sides (see Appendix for a suggested method of making boards).

Unfortunately, the professional facilities to which I had access have been dismantled, so I cannot offer a ready made circuit board for this project.

During the development of this amplifier, all kinds of construction methods were used, and it was found that layout was uncritical if signal and by-pass leads are kept reasonably short, so just about any method that you feel comfortable with will probably work — at least to 7 MHz! If higher frequency work is planned; you are strongly urged to adopt the layout used for the prototype.

The MOSFETs are screwed onto the board side by side, with a 6030 heatsink attached to each. The drain also connects to the mounting tag, and because double sided board has been used; an insulated washer must be fitted under the head of each screw. A very small amount of heatsink compound or petroleum jelly should be applied to the MOSFET/heatsink interface to improve heat transfer. The MOSFETs come with aluminium foil wrapped around the solder pins to protect the gate from static electricity during shipping and handling. You should experience no problems provided your soldering iron tip is properly earthed. I have been experimenting with these devices for some years now, and so far have had no problems with damage even after a device has been removed and replaced many times.

As mentioned earlier; zener D1 is positioned against the heatsinks of Q1 and Q2 so that any heat generated by these may influence the zener voltage. A small blob of petroleum jelly could be applied here also. Carefully note correct D1 polarity. The case or box housing the amplifier must have holes for adequate ventilation of Q1 and Q2.

For stability, the unetched 'ground plane' must be connected to the etched side earth common (-ve supply) in at least two places at the input and output areas of the board. The prototype has through links placed at the source of Q1 and at the point where C2 and C5 have their earth connections. Instability problems may be encountered if these connections are not made. These points are marked on the board layout with a small circle. Drill these with a one millimetre drill.

Transformers T2 and T3 are made as follows: Lay two 300 millimetres lengths of #22 B and S (0.64 mm) enamelled wire parallel to each other, then twist them together at each end. Clamp one end of the pair in a vice, and fix the other end in the chuck of a hand drill. Whilst keeping the pair taut, turn the drill slowly until you have about three twists per centimetre. Tug the drill gently to set the twist, then remove your twisted pair.

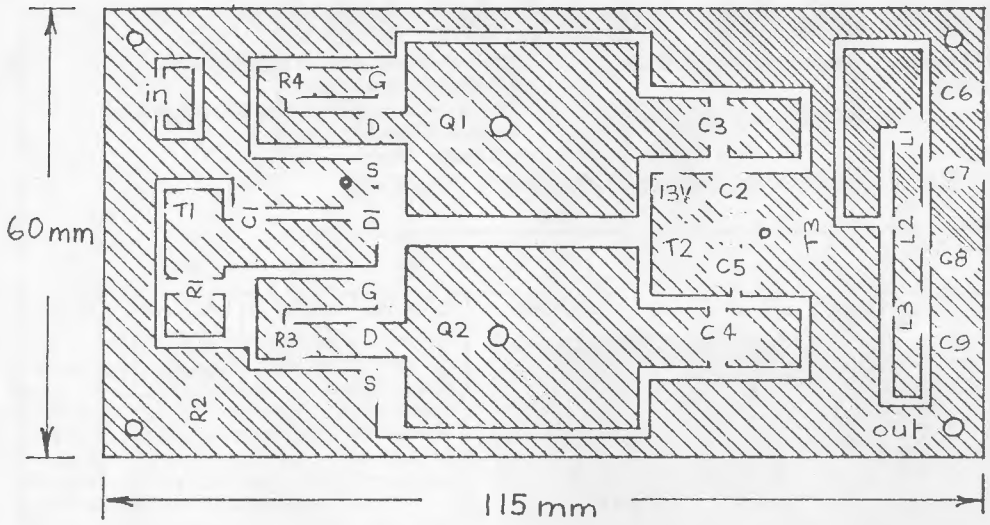
Now, carefully wind the pair through an Amidon FT50-43 toroidal core. About 11 loops should fit nicely on the core. Cut each lead to about two centimetres length, and carefully scrape about one centimetre of enamel from each wire.

For T2, use your multimeter set to ohms X1. Test for continuity of one 'winding'. Now connect the end of one winding to the start of the other winding to form the centre tap. The winding starts are shown schematically with a dot.

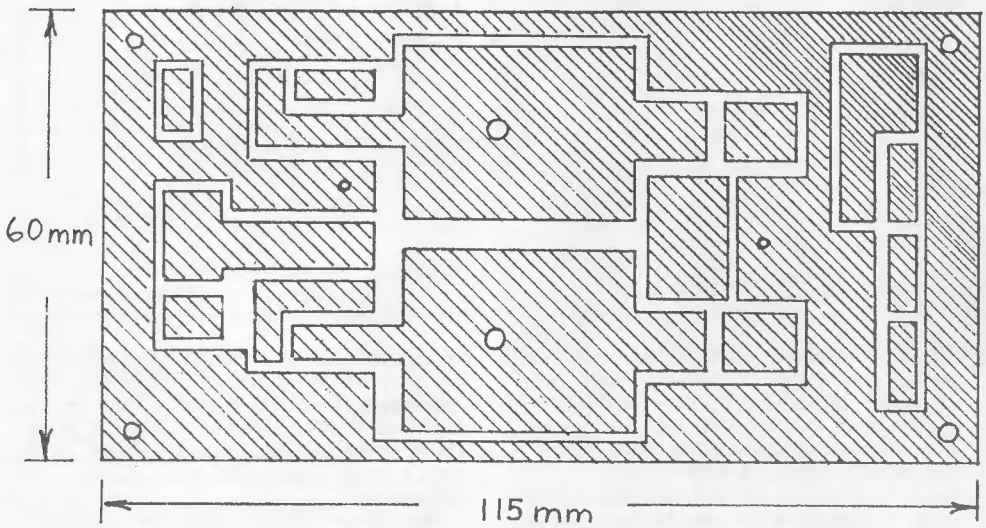
T3 is used as a balun, the signal being propagated along the winding from start to end, so there is no need to sort out connections for this one.

T1 is made in a similar manner to T2 and T3, but now we need three 300 millimetre lengths of #24 B and S (0.5 mm) wire. Take care that the twists are even throughout the length of the triplet.

Finding the correct connections can be a little tricky. Firstly, locate the start and end of one




**Component Locations on PCB.**




**Board layout (Full Size). Shaded area indicates copper.**

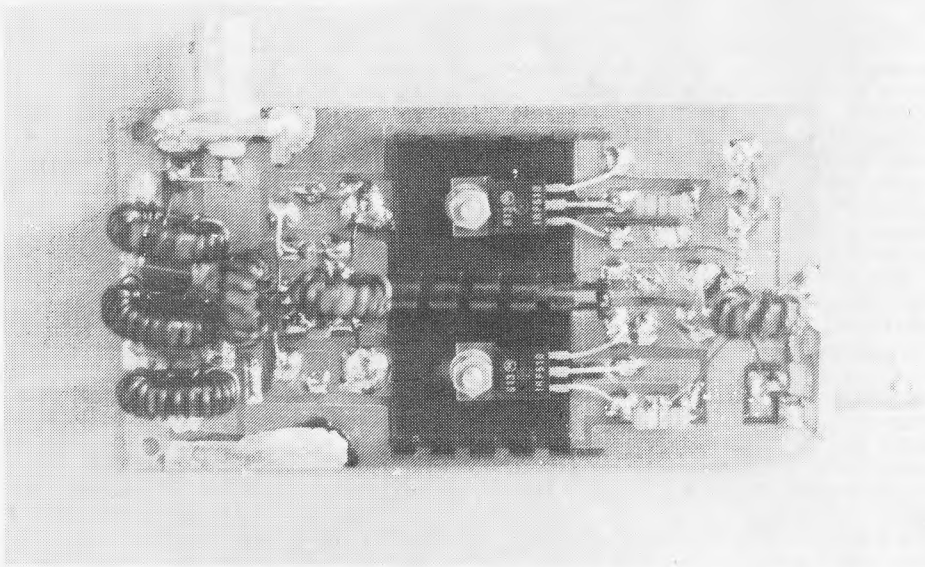


**Photo 3: Prototype Board Layout.**

winding. Having done so, push these two wires to one side well out of the way. This can be the input 'primary', and eliminates two wires. Now, as for T2, locate the leads for the two remaining windings, then connect the end of one winding to the start of the other winding to form the centre tap. Double check these connections before soldering.

If multiband operation is planned, it is suggested that the highest band filter be accommodated upon the amplifier board, permanently in circuit, and any lower frequency filters upon a purpose-built additional board. The signal must be routed via 50 ohm coax with their braids connected to chassis ground at each end. The table shows the capacitor values and the inductance for the coils followed by the number of turns to be would upon the Amidon T68-2 cores for each band.

Polystyrene/Styroseal capacitors should be used for the low-pass filter/s, although it may be difficult to obtain some of the larger values such as the 1800 p and 3300 p. Greencaps have been found to be entirely satisfactory in this application. Ordinary disc ceramics will work, but have slightly higher loss than the aforementioned. Of course, silver micas may be used if available (fortunate is the experimenter with a collection of silvered mica capacitors).

It would be a good plan to provide a two amp fuse in the supply circuit.

## COMMISSIONING

Check that all components are properly positioned and have correct polarity. Set R2 for minimum resistance, then apply voltage (nominally 13 volts). With no input signal, adjust R2 bias so that the no- signal ideal current drawn from the 13 volt supply is about 200-300 mA. The output must be terminated in a 50 ohm non-reactive load (not an antenna at this stage). A 12 volt/4 watt (36 ohms) globe would make a reasonable dummy load if a 50 ohm dummy load or power meter are not available. Apply about 100 mW of carrier at a frequency lower than the cut-off of the low pass filter. About five watts should be indicated on your power meter, or the lamp brightly lit, indicating that the amplifier is working. The current drawn under signal conditions should be about one amp from a 13 volt supply. No discomfort should be experienced when the heatsinks are lightly touched after some minutes operation at the five watt level.

One of the incentives for this project was as a linear amplifier for the DSB/CW transmitter (see Reference 3). The driving source should be made to deliver about 100 mW PEP DSB/SSB, or 100 mW CW for linear operation. Up to about 300 mW may be required at 10.1 MHz. Do not overdrive, or flat topping and distortion will occur.

## PROBLEMS

If you cannot get the amplifier to work satisfactorily, even after fruitless attempt on your part, please write to me about it, and I will extend any reasonable amount of help necessary. A SASE would be appreciated.

## PARTS

All the components specified in this project are readily available at present, and are known to be obtainable from Ian J Truscott's Electronic World, 30 Lacey Street, Croydon, Vic. 3136. (See advertisement elsewhere this issue). Other suppliers of Amidon cores regularly advertise in this journal. (See also Trade Ads in Classified Section).

**REFERENCES AND FURTHER READING**

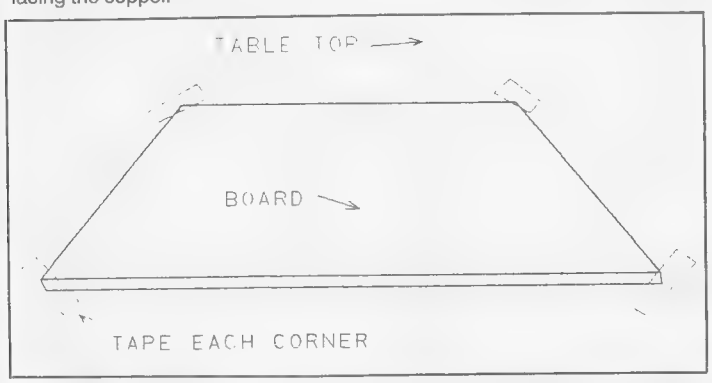
1. Power MOSFET Transistor Data Book — Motorola.
2. Solid State High Frequency Power — Gottlieb, ISBN 0-8359-7048-5.
3. DSB/CW Transmitter for 80m — Diamond, *Amateur Radio*, March 1985.
4. Practical RF Design Manual — DeMaw, ISBN 0-13-693754-3.
5. Solid State Design — ARRL.
6. 3.5 MHz 5W Transmitter — Fletcher, *Radio Communications* magazine, November 1987.

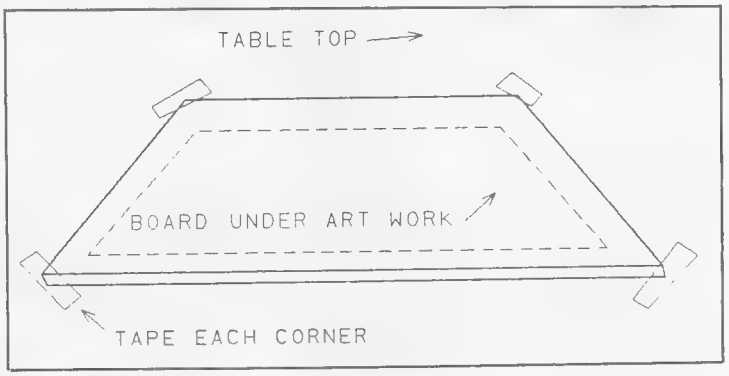

## APPENDIX 1
## SUGGESTED METHOD OF MAKING HOME-MADE PRINTED CIRCUIT BOARDS

METHOD 1:

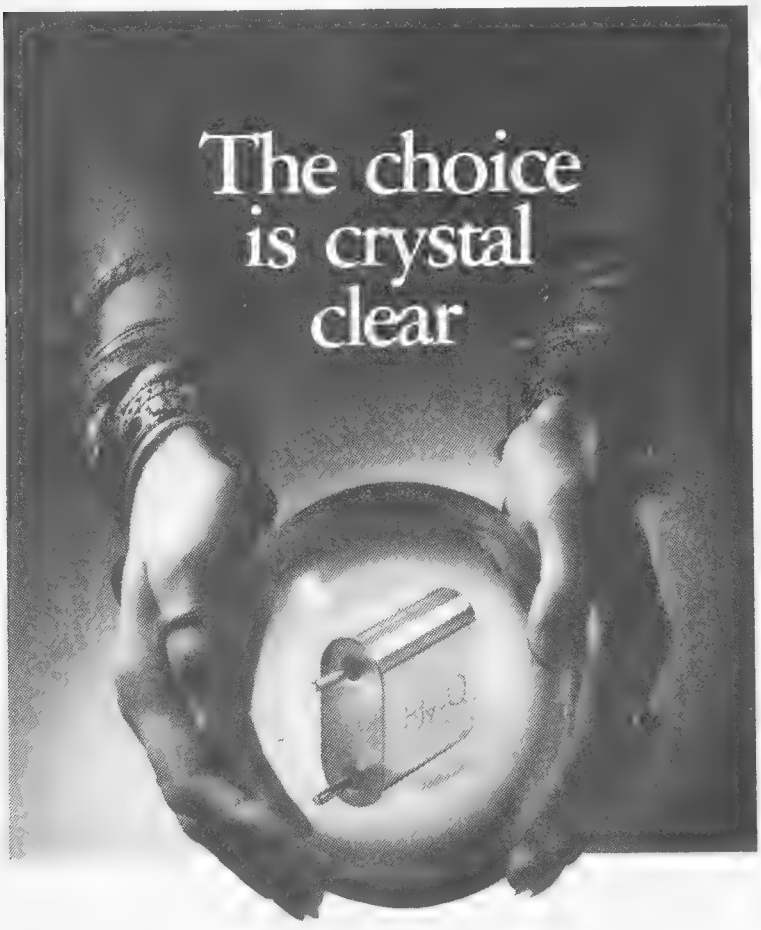
1. Cut out a piece of PWB material to the require dimensions.
2. Wrap the board in carbon paper — ink side facing the copper.
3. Stick the board on to a table-top surface with tape at each corner thus:
4. Lay artwork over the board with the pattern facing upwards and aligned exactly over the board. Use a sharp instrument such as a pin to locate each corner.
5. Again use tape to stick each corner of the artwork sheet onto the table thus:
6. Using a red ballpoint pen, trace the pattern onto the board below. As most HF patterns are made from right angles, a Perspex ruler is handy to help get the lines straight.
7. When tracing is complete, the board may be removed from the carbon paper. Be careful not to rub the tracing off. Shellac may be painted onto the "wanted" areas with a small child's paint brush. This is the exacting part of the operation, and patience is required. Clean brush with methylated spirits. Allow the shellac about two hours to dry. Remember to paint the entire reverse side of double-sided boards.
8. Place the painted board into your ferric chloride solution. Check how the etching is going at regular intervals.
9. When the unwanted copper has been removed, the board should be washed and allowed to dry. When dry, the shellac may be removed with methylated spirits. Steel wool should be used to polish the board and so remove any residual traces of ferric chloride.

An alternative to the shellac approach is to wrap the board with paper packing tape before step 2 above, then trace the pattern per steps 3 to 6. A sharp knife may then be used to cut the pattern out to expose the copper to be removed. This method is slightly quicker than when using shellac, and yields a better result. More practice is required to master this method however. The reverse side of a double-sided board is simply covered completely with the tape.





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# AN INTRODUCTION TO FOX HUNTING

## A BEAM ANTENNA FOR TWO METRE FOX HUNTING

**Greg Williams VK3VT**
*1 Noorabil Court, Greensborough, Vic. 3088*

***The following beam has proved to be a winner in many fox hunts.***

WHILE MORE GAIN could be realised from wider spaced elements this antenna has reasonable gain, good front to back ratio and a clean pattern. In fox hunting the cleaner the pattern the more confidence a hound has that the direction is correct. Several regular hunters in the Melbourne area have built beams optimised for 144.250 MHz which have superior performance to this unit at that frequency, however their performance at the other end of the band falls off dramatically. This antenna has uniform performance across the whole two metre band and can be used on any two metre hunt.

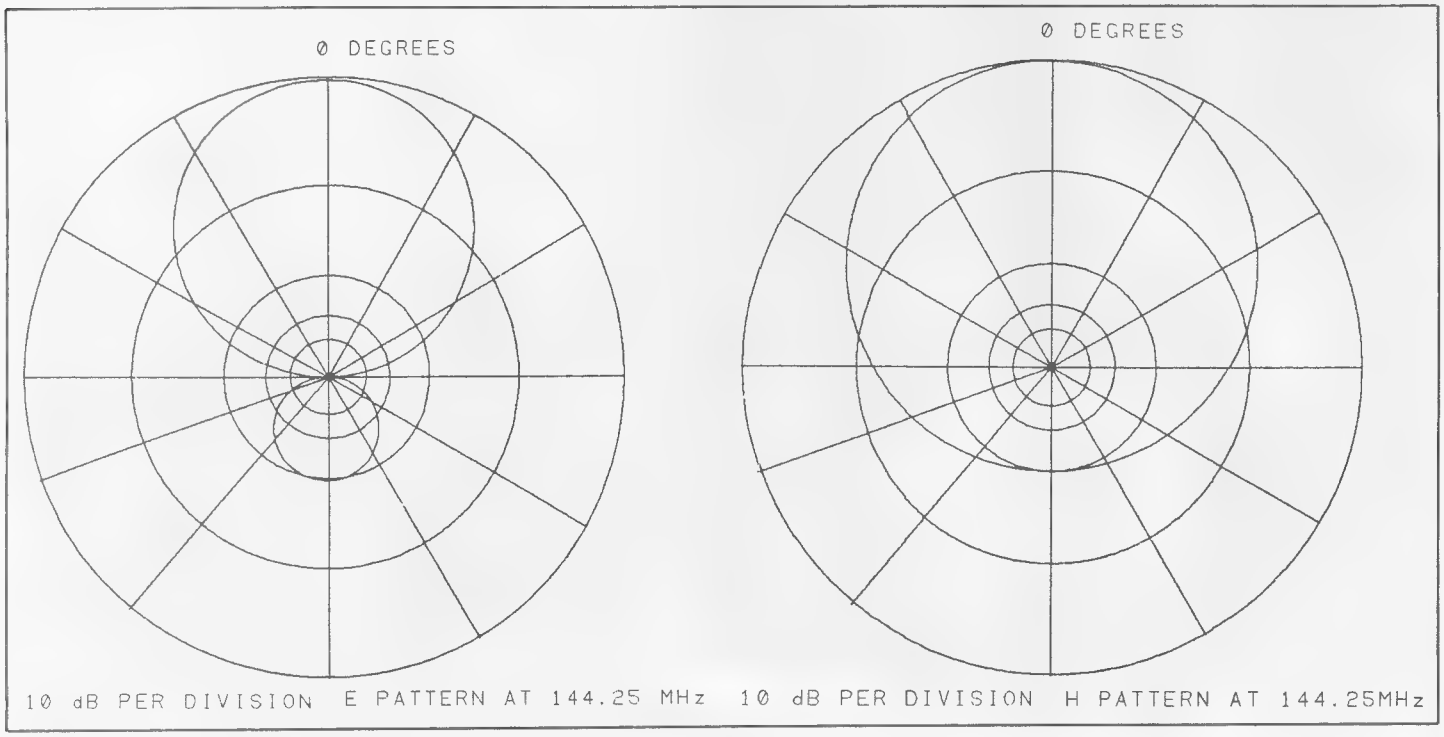
While we should be using metric measurements. ALCAN does still make some imperial products and the smallest diameter aluminium tube available is 3/16 inch. It was used for this antenna, and one four metre length is required. Therefore, imperial measurements are used when referring to the elements and any holes that must be a snug fit for them. Elements are made from 3/16 inch aluminium tube and the boom is 12.5 millimetres square section. Mounting the elements through the boom is achieved by drilling a 3/16 inch hole and forcing the tube through. Measure the amount of the element on each side of the boom and adjust until the boom is in the middle of the element. Holding the elements in place are self-tapping screws through the boom. There is no need to have these screws going through the elements as they are screwed through the boom and then pressed against the element holding it securely.

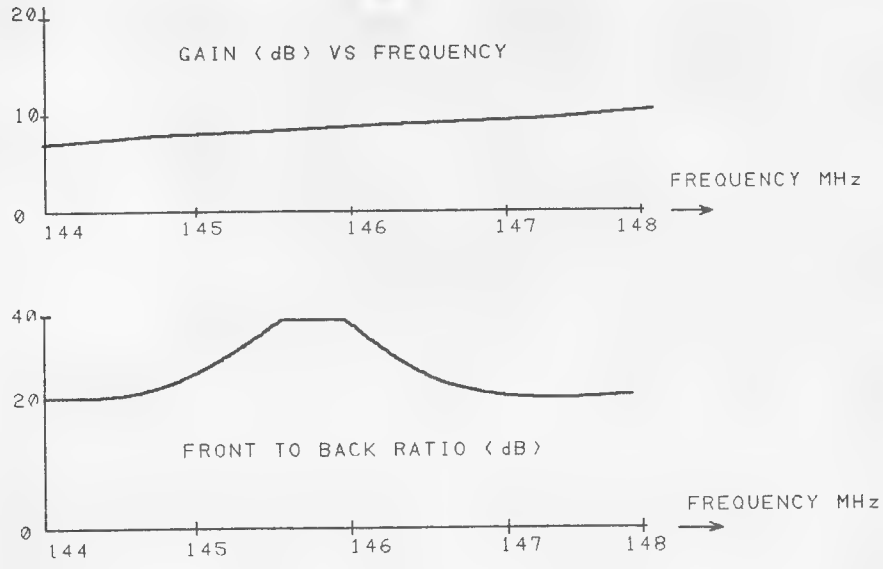
The beam is fed by a T-match as this provides a balanced feed which will not skew the radiation pattern as can happen with a gamma match. A half wave balun is used to connect the RG58 feed line. The length given is for good quality RG58 with a velocity factor of .66, however some of the cheaper cable, branded as RG58, may not have this velocity factor.

As I would not be transmitting through this antenna I made no attempt to match it, all the text books would have small capacitors in each leg of the 'T' and the length of the 'T' arms should be longer. However it seems to make little practical difference to the antenna. The length of the 'T' arms was determined by what was left of a 4 Metre length of tube once the elements had been cut!

The VSWR of my antenna is about 3:1 so do some more matching if you want to use it for transmitting. The clamps at the end of the 'T' arms are made from 10 millimetre aluminium angle. Indentations for the element and the 'T' tube are made with a round file and extend the full depth of one side of the angle. This positively locates the 'T' arms. The other section of the clamp has one side of the angle removed completely. A machine screw holds these two sections together. The addition of a spring washer will help to prevent the whole lot from falling off in the middle of a hunt.

Mount the balun in a small plastic 'jiffy' box to provide protection from the weather and the ravages of the car boot. On one fox hunt we could not get a definite direction and finally tracked the problem down to broken connections on the a balun that had not been protected. The jiffy box is screwed to the boom with self tapping screws and provides support for the arms of the 'T', drill 3/16 inch holes in each side to accommodate these. Self-tapping screws and solder lugs are used to connect the balun and feedline to the 'T' arms. The feedline is securely taped to the






**Traces of Computer Generated Plots of the Yagi Antenna (see circular graphs also). These were produced by a Yagi analysis program for the IBM Personal Computer by Paul VK3DIP.**

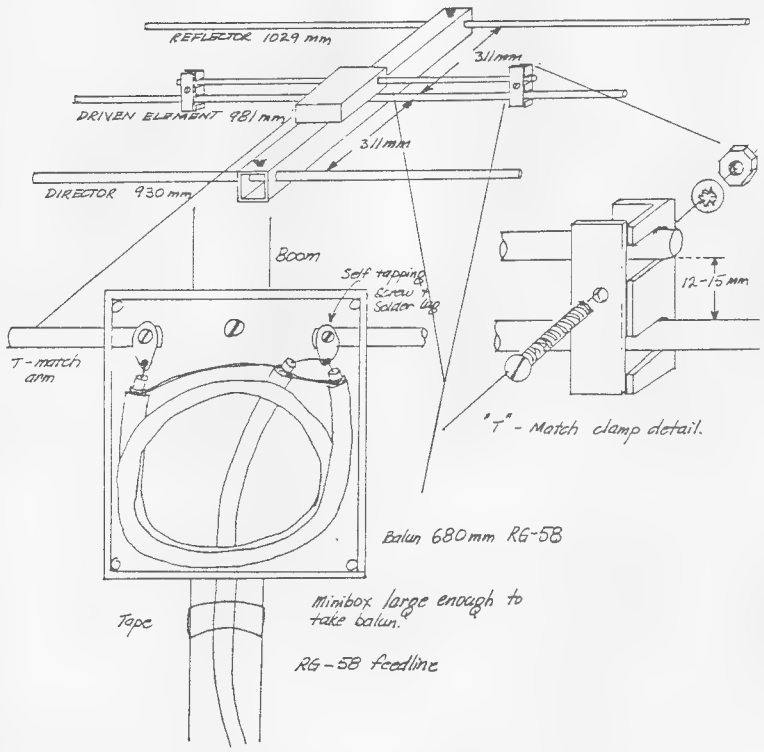



**Figure 1: Balun Box Detail.**

boom and then routed through a suitable hole in the jiffy box. Leave some slack inside the box to allow for small movements in the elements due to wind and rough ground. Bunch all the braids from each end of the balun and the feedline together and solder them, taking care not to overheat the dielectric in the cable and thus cause shorts. Seal the holes in the jiffy box and lock the cable in place with silicone sealant. NOTE: Use 'ROOF and SPOUTING' sealer, as 'BATHROOM' sealer contains acetic acid which will attack the copper and aluminium.

Leave enough feedline on the beam to allow for the car door to open and still have some slack in the car. To watch your new home brew super fox hunt receiver fly out the door onto the footpath is not a good feeling.

Attaching the beam to the pole on the car is done with a 'U' bolt through the boom. Make sure you put the antenna on pointing in right direction and that the handle, or other direction pointer, agrees with the beam. Many teams have fallen for this mistake and have rushed off in the wrong direction and that is the end of their hunt.

■

### ABOUT THE AUTHOR

Greg was first licenced in 1966 as VK3ZXW and was active on the 52 and 144 MHz bands in the AM days. He gained his full call in 1982 as VK3BGW and took out VK3VT in 1984. In 1978 he attended his first WIA Victorian Divisional monthly two metre fox hunt as a guest of Ewen VK3BMV, and he formed his own team the next month. Greg's team have been Victorian two metre fox hunt champions every year since then, including sharing in a triple dead heat with Ewen VK3BMV and Paul VK3DIP in 1980. He has been a member of successful fox hunt teams at Mount Gambier, Wagga Wagga and Ballarat conventions.

Greg was a member of the WIA Victorian Division Council from 1978 to 1982 and was the VK/ZL/O Contest Manager for four years. He was the founding president of the North East Radio Group (NERG) and is one of the lecturers for their Novice class.

He is married to Denise and has three children, Andrew (11), Kate (9) and Sarah (6). Greg is a Computer Systems Officer with Telecom Australia and his interests include Church, family, fox hunting, teaching amateur radio, building equipment (and talking about building equipment), computing, contesting, fishing, camping, observing car racing, bike riding, gardening and home maintenance.

## VHF/UHF

On Friday, July 15, at 2100 UTC, GI4KIS, in Northern Ireland, whilst tuning around the two-metre band on 144.300 MHz, heard a bevy of activity. It was nothing more than EA8BE in the Canary Islands. Pointing the beam in the correct direction earned Eric a 599 report. Shortly after a SSB contact was made. Following this first and the accompanying excitement, he had a QSO with EA8BEX for a period of 81 minutes, with signal strengths wavering between S3 to S9. The distance is 3065 kilometres, probably not a world record but maybe a Region 1 example of what maybe bettered.

### FINNISH AMATEURS TO USE SIX-METRES

Although not yet finalised, it appears that the amateurs in this country may receive permission to operate six-metres on a non-interference basis. The probable allocated frequency will be 50.000 to 50.450 MHz using the CW and SSB modes.

—Contributed by Ken McLachlan VK3AH, from the *ARRL Newsletter* August 9, 1988

■

# Equipment Review

**Ron Fisher VK3OM**
*3 Fairview Avenue, Glen Waverley, Vic. 3150*

## KENWOOD TS-140 & TS-680 TRANSCEIVER

Since the demise of the TS-130S transceiver, Kenwood have had to rely on the TS-440 as their lowest priced HF transceiver. With the fall of the Australian Dollar over the last few years, the price of the 440 is now around the $2000 plus mark. This must be something of a shock to amateurs who payed less than $1000 for their last rig. In the days when the 130 and 430 were running-mates, they were very different pieces of equipment with the 130 being a basic amateur band only transceiver while the 430 had full general coverage receive, two VFOs and that great advancement of all modern equipment, memories. The gap has now closed. Not completely, of course, but certainly to the point where you need to look very closely to see where the differences are. At the present price of these units, I am sure that Kenwood will be rushed with orders.

Let us look at the two transceivers and see just what they have to offer and also how they compare with the still current TS-440S.

The TS-140 and TS-680 are identical in all respects except two points. The 140 transmits on all amateur bands from 160 to 10 metres, has a general coverage receiver from 50 kHz to 30 MHz, while the 680, in addition to all of this, also covers the six metre amateur band. Both transceivers have a nominal 100 watts output from 160 to 10 metres, with the 680 having 10 watts output on six metres. As a sort of payoff for this, the 680 does not have VOX for SSB which the 140 does, but both have an excellent full break-in keying system for CW. Naturally they are both fully solid state and are designed to operate straight from a 12 volt DC source and do not contain any internal power supply. If you are contemplating the purchase of one of these rigs, you should keep this in mind as a DC power supply with a peak current output of 20 amps will be required for home station use. For portable or mobile use, just hook it up to your 12 volt car battery.

Both are the same size and weight, 281 x 107 x 305 millimetres and the weight is 6.1 kilograms. Presumably, the weight of the six metre module in the 680 is exactly equal to the VOX unit in the 140. They are, in fact, just a fraction smaller than the 440S and .2 kilogram lighter assuming that the auto antenna tuner is installed in the 440S. Now, what don't you get in the 140/680 that comes as standard in the 440S. Firstly, there is no provision for a built in auto ATU. If you require one, it is necessary to purchase the AT-250 external automatic ATU. Both the 140 and the 680 have provision to interface with it. The only filter option available is for narrow CW. There is no provision for a narrow SSB or narrow AM filter. The excellent notch filter on the 440S is missing, but the useful IF shift feature is retained on the 140/680. The keyboard frequency entry of the 440S is not there nor is the automatic SWR meter or the provision for the optional voice frequency readout. Memories have been reduced from 100 in the 440 to 31 in the 140/680. I don't expect this will worry many as it is rather hard to use 100 memories! As we shall see later, the 140/680 have a few rather nice facilities that are not in the 440.

Tuning via the tension adjustable tuning knob is in 10 Hz steps for CW and SSB and in 50 Hz steps for AM and FM. This gives a tuning rate of 10 kHz and 50 kHz per knob revolution. Battery back up is provided for the tuning and memory systems, so that the last used frequency reappears when the set is switched on. An interesting addition to the tuning system is the VFO channel knob just to the left of the main tuning control. This control allows fast stepping from any selected frequency in 10 kHz steps. The first steps takes you to the nearest 10 kHz point and from there it goes in even 10 kHz steps. For the standard broadcast band these steps can be changed to a 8 kHz stepping rate to suit our broadcast band plan. When the memory mode is selected, this same control becomes the memory selector. The band up/down buttons are multi-function. In the normal mode they select the amateur bands in sequence. But, with the 1 MHz button pushed, the tuning range is stepped in 1 MHz or 500 kHz segments. This latter provision, like the 9/10 kHz broadcast stepping, is selected (as are others) on initial switch on of the transceiver. As is common these days, two VFOs are included, but in addition to this, memories 20 to 30 can act as 11 extra VFOs. As an example, by programming 14 MHz and 14.350 MHz into memory 30 it is possible to tune between these two frequencies when memory 30 is selected. By programming your favourite band segments into these memories gives rapid selection of them, a very handy feature. Frequency readout is available in either 10 or 100 Hz resolution, again available on initial switch on. Mode selection is signalled in Morse code and several alarm signals are spelled out in Morse code. Examples of these are, microprocessor reset signalled ***RESET*** in Morse, as does ***UNLOCK, CHECK MEMORY, EMPTY*** and ***FULL.*** These last two relate to the status of the memory system. Well, at least it provides some good Morse practice.

### ON-AIR

These are delightful transceivers to handle. With the exception of the memory section, it is possible to get things going quite well without the help of the instruction manual. The tuning control has the same smooth feel as the 440S and the adjustable tension is a good feature. For home station use, I preferred this set to the loosest position but the increased tension setting would be ideal for mobile operation.

The front panel display is excellent. The actual frequency readout is similar to all of the current Kenwood HF transceivers. It is bright and clear under normal lighting conditions but it does become hard to read with direct sunlight shining on it. Overall, I prefer it to the LCD type display. Incorporated in the display are indicators for mode selection, VFO, scan, memory channel, split operation and RIT. Frequency and RIT readout are in blue and the other status indicators are in red.

Perhaps the worst feature of the front panel layout is the four slider controls on the right. These are for power output, microphone gain, RF gain and noise blanker level. Initially, is is unfortunate that the RF gain is included at all among these. It should be concentric with the audio gain control. However, the squelch control has been placed here for some strange reason. I must say that this is not common to Kenwood. Both Icom and Yaesu have done the same thing. I feel that squelch is a "set and forget" control whereas the RF gain is in use for a good part of the operating time. The squelch is inoperative on all modes except FM. The trouble with the slide controls is twofold. First, the overall travel is only about one centimetre and it is necessary to use a finger nail to operate them. Then, most of the control function occurs over a millimetre or two making adjustment of power and microphone gain particularly critical. On the plus side, it does give the front panel a very uncluttered look.

The AGC can be switched for fast or slow decay times, but I feel that the slow release is not slow enough. This is accentuated by the difficult action of the RF gain control as mentioned above. A look at the circuit seems to show that it may be possible to modify the slow AGC fairly easily by the addition of about .1 or .2 MFD across the existing delay capacitor.

The noise blanker has two settings plus a lever control. The second setting is to reduce the woodpecker. In use, I did not find the blanker to be all that effective. With the level control advanced beyond halfway, a good deal of cross modulation became obvious. Car ignition was well suppressed but general electrical hash was not reduced to any marked extent.

The RIT control is excellent. Again, with the initial power on function, the offset can be changed from $\pm$1.2 kHz to $\pm$2.4 kHz. It does this by changing the RIT action from 10 to 20 Hz steps. This is the first dual speed RIT I have seen since the old Uniden 2020. Unfortunately there is no XIT, transmitter incremental tuning which most DX operators find so useful.

One of the highlights of these transceivers is the memory system. This certainly breaks new ground and is quite unique. Memories 00 to 09 can store one frequency and one mode each. Memories 10 to 19 can be programmed to store either single frequencies plus mode or split frequencies plus mode. This means that 10 metre FM repeaters can, as an example, be stored into these 10 memories. But, perhaps the most interesting are the last 11 memories (20 to 30). These can be programmed with the highest and lowest frequencies of any desired band which is then tuned in the normal way with the main tuning

control. I set up several amateur band segments that I normally use and found that, using the memory selector switch to change bands was much quicker than using the band up/down buttons.

Scanning facilities are most comprehensive. With the memory mode selected, memories are scanned and the speed is adjustable by using the RIT control. With the RIT set at its normal central point, the scan delays on each memory for about four seconds. In the full clockwise position this is reduced to something less than one second, while in the full counter clockwise position, the delay is 14 seconds.

When in the VFO mode, a programmable band scan can be initiated again with the speed adjustable with the RIT control. The scanning range is selected by entering the upper limit into memory 30. The scan then takes place between the selected VFO frequency and that frequency. Also, when in the VFO mode, up down scanning can be initiated with the buttons on the supplied hand-microphone. This is fully manual and lasts only while the button is depressed. When in the memory mode, these buttons also select the memories.

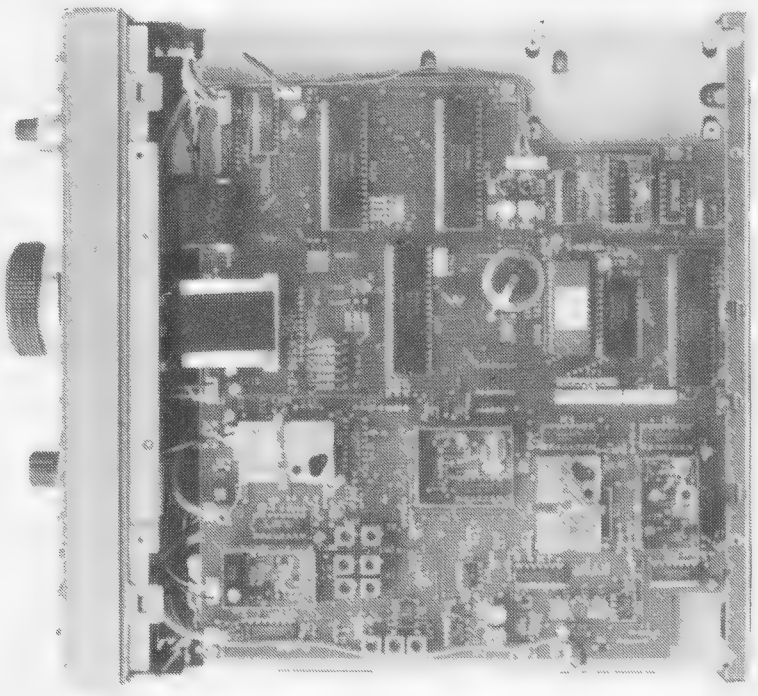
Received audio quality is generally satisfactory especially if a good external speaker is used. The in-built speaker produces about the same quality as the 430/440 which is quite satisfactory. AM received audio was okay, but perhaps a little on the thin side with a noticeable lack of low frequencies. AM selectivity again was okay for general listening but if you are a shortwave broadcast band DXer you would possibly want tighter skirt selectivity. As mentioned earlier, no optional improved AM filter is available. Our review transceivers did not have the optional CW filter fitted so I cannot comment on its performance. Its' specified bandwidth is 500 Hz at -6 dB which should be ideal for the casual CW operator.

Transmit performance was also very good and very straight forward. Just present the output with a 50 ohm load and you are in business. Transmit metering is either ALC or power output calibrated in watts. The non-linear power meter reads about 35 watts at centre scale and 150 watts full scale actually shows PEP output on SSB although the response is a little too fast to get an accurate reading. Again, a slight modification in this area might be in order.

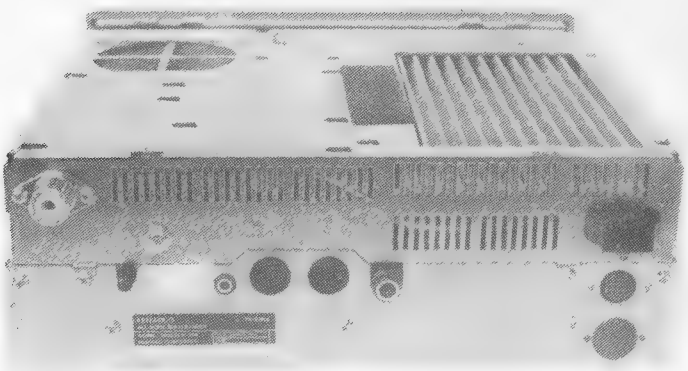
Transmit quality with the supplied hand-held microphone was quite satisfactory but somewhat smoother using the MC-60A optional microphone. The speech processor certainly gave the transmission some extra punch, but under strong signal conditions made the audio rather breathy. The processor is similar to the one used in the earlier TS-130/430 and the current 440. It is an audio limiter/compressor unit and certainly not comparable to the RF processors used in the TS-930/940 transceivers. Perhaps the greatest complaint on transmit was the action of the microphone gain control. To get the ALC reading right, an almost microscopic adjustment was needed. The power output control operates on all modes but has rather different effects on each. On CW, the power can be varied from virtually nothing to full output of about 100 watts. FM power is set to about 50 watts maximum and can be reduced to around five watts. AM, like CW, can be varied from 100 watts down to zero although maximum should be kept to about 30 to 40 watts output on carrier to allow for modulation. SSB is the one that is different though. Output can be reduced to only about 20 watts and, at this power, some funny things happen. It appears that the ALC is not effective until it is actually activated. The first speech peak produces an output of 100 watts and after that it settles down to 20 watts. If there is a pause for a few seconds, the same thing happens again. This strange happening is easily picked up on a scope and PEP power meter, and is even noticeable at full output!

Transmitted FM quality was rated as excellent and I am certainly waiting for 10 metres to really open up to put this mode to use. However, it is surprising that more amateurs don't use 10 FM for their "private" local nets.

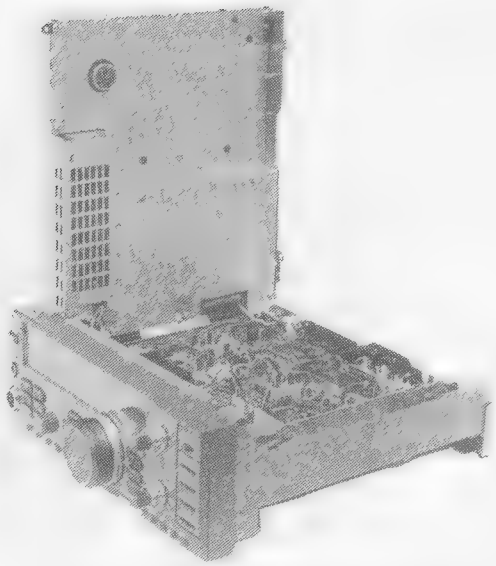
The CW and data operators are well catered for with these transceivers. They keyed very well and the full break-in facility will be appreciated by the keen Morse operator. The instruction book has information on connecting a packet, AMTOR and RTTY terminal via an accessory connector at the rear of the transceiver. It is noted that the 140/680 is not rated for continuous full power output while using data modes, as was possible with the TS-440. Recommended output is 50 watts.



Some of the intricate circuitry when the cover is lifted.



Rear view of the transceiver.



Inside view showing final amplifier compartment hinged up for easy accessibility.

While testing these transceivers on air, a question frequently asked was; "do those transceivers run hot, because they don't have a heat sink for the final, do they?".

At first glance, this may appear to be true. There is no heat sink protruding from the back panel in the usual way. However, there is a heat sink and a good-sized one at that. Lifting the top half of the cabinet discloses the missing item. It is a large diecast section covering a good-sized area. There is also a fan built in to aid the cooling when things get hot.

However, it must be said that the cooling is not as good as the TS-440 and this shows in the specifications. The 440 is rated at 100 percent duty cycle on all modes, the 140/680 is not. In normal use during a Melbourne winter there was no sign of over heating at all, even when running processing on SSB.

As a final point in this section, it is interesting to look at the overall frequency coverage of the TS-680. The general coverage receiver section covers from 50 kHz to 34.999.9 MHz and then from 45 MHz to 59.999.9 MHz. That is quite some coverage! Perhaps the next model will include the two metre band as well.

One complaint (not from me) mentioned to me by several prospective 680 buyers was that there should have been a separate antenna connector for six metres. Well, I guess that you cannot have everything!

## ON-TEST

Using our normal line up of test equipment, I put the transceivers on test.

RECEIVER TESTS: The receiver audio output via the external speaker socket was terminated in our dummy load watt meter and bridged with the noise and distortion meter.

| | |
|---|---|
| SSB/CW distortion at .1 watt output | 1.3 percent or -38 dBm |
| Audio output for 10 percent distortion | 2.1 watts at 4 ohms<br>1.7 watts at 8 ohms |
| Audio amp noise with audio gain at minimum | -59 dBm |
| SSB frequency response | LSB at 3.6 MHz |

| 200 | 300 | 500 | 1k | 1.5k | 1.8k | 2k | 2.5k | 3k |
|---|---|---|---|---|---|---|---|---|
| 0 | +2 | +2 | 0 | -3 | -5 | -5.5 | -7.5 | -11 dB |

Receiver sensitivity for 10 dB S + N/N

| | 1.8 MHz | 3.5 MHz | 7.1 MHz | 10.1 MHz | 14.2 MHz | 18.1 MHz | 21.2 MHz | 24.9 MHz |
|---|---|---|---|---|---|---|---|---|
| SSB/CW | .25 | .18 | .15 | .18 | .18 | .15 | .18 | .18 |
| AM 70% mod | .5 | .4 | .3 | .4 | .4 | .3 | .4 | .6 |

| | 28.5 MHz | 51 MHz |
|---|---|---|
| SSB/CW | .15 | .1 |
| AM 70% mod | .5 | .6 |
| FM 3 kHz dev | .15 | .13 |

28 and 51 MHz measurements are taken with the preamplifier in.

The S-meter calibration was checked at 14.2 MHz.

| S1 | S3 | S6 | S7 | S8 | S9 | +10 | +20 | +30 dB |
|---|---|---|---|---|---|---|---|---|
| 1.6 | 4 | 10 | 20 | 25 | 50 | 100 | 300 uV | 1 mV |

Input for S9 reading was checked on the following bands

| MHz | 3.5 | 7 | 10 | 18 | 21 | 24 | 28 | 50 |
|---|---|---|---|---|---|---|---|---|
| uV | 40 | 40 | 50 | 50 | 50 | 60 | 50 | 40 |
| Preamp in (680 only) | | | | | | 15 | 12.5 | 20 |

The AGC was checked and found that the signal generator output was increased from 1 uV to maximum, the audio output increased by 1 dB.

The above figures are very good in most respects. The SSB frequency response shows that the carrier frequency is a little too close to the filter. A slight adjustment here would possibly improve the received and transmitted quality. Frequency stability and frequency readout accuracy were most impressive. After several hours use, the transceiver did not drift more than 100 Hz. The frequency readout was accurate within the same limits.

TRANSMITTER TESTS: The transmitter output was terminated with a 50 ohm dummy load watt meter and bridged with a monitor scope. The following power output was noted.

| | 160 m | 80 m | 40 m | 30 m | 20 m | 18 m | 15 m | 12 m | 10 m |
|---|---|---|---|---|---|---|---|---|---|
| CW/SSB | 110 | 115 | 112 | 110 | 105 | 100 | 100 | 97 | 95 |
| FM (10 m only) | | | | | | | | | 50 |

| | 6 m | (680 only) | 9.75 | FM | 9.75 |
|---|---|---|---|---|---|
| CW/SSB | | | | | |

AM: As the AM output should not exceed about 30 to 40 watts it was possible to achieve this on all bands. At 30 watts it was possible to obtain close to 100 percent. Finally the current drain was checked.

| | |
|---|---|
| Receive with no audio output | 1.2 amps |
| Receive with .5 watt output | 1.5 amps |
| Transmit, LSB. No output | 2.0 amps |
| Transmit, CW. 90 watts output | 15.0 amps |

Modulation with low distortion was indicated on the monitor scope. AM quality was rated as good with supplied hand-held microphone and excellent with the optional MC-60A. So why not try the AM on 160 and FM on 10 and enjoy some good quality phone on the HF bands.

## INSTRUCTION MANUAL

The same manual is issued for both transceivers. A block diagram for each transceiver is printed but the circuit diagram supplied appears to be for the TS-140. Presumably, to get a circuit for the 680, it might be necessary to purchase the workshop manual.

Operating instructions are well covered and, in particular, the section on the memory is very well done.

The book's various sections are as follows:

1. Before operation
2. Specifications and accessories
3. Installation and connection
4. Operation
5. Circuit description
6. Maintenance and adjustments
7. Optional accessories
8. Reference data.

There are 48 pages in all. In general, it is well written but the reference under mobile operation to bond the accelerator to ground using a heavy ground strap might need a second look.

The adjustment section gives information on the following:

1. Sidetone level
2. Beep tone level
3. Adjustment for data communications level input
4. Microphone sensitivity level adjustment
5. Semi break-in delay time
6. Linear amplifier control
7. Digital display calibration

However, if you want to set the SSB carrier suppression or the S-meter zero or sensitivity, you are out of luck. It seems to me that another page or two of basic adjustments would not be out of place. Overall, the instruction manual scores seven out of 10. Not bad, but could be better.

## CONCLUSIONS

I think Kenwood have got a winner with these two transceivers with the 680 taking first prize by a short margin. I think I can live without VOX. Few amateurs seem to use it these days, but the chance to try out six metres over the next few years is tempting to say the least.

Our thanks to Kenwood Australia for the loan of the two transceivers from which this review has been compiled.

ar

# INTRODUCING THE NEW MINISTER

Ralph Willis MP, has been appointed the Minister for Transport and Communications in the third Hawke Ministry, replacing Senator Gareth Evans who is now the Foreign Affairs Minister.

A cabinet portfolio reshuffle was necessary with the resignation of Bill Hayden, who becomes Australia's Governor General.

Mr Willis, 50, married with two daughters and one son, was elected to the House of Representatives seat of Gellibrand, in inner south-west suburban Melbourne, in 1972.

He was educated at University High School and graduated from the University of Melbourne with a degree in Commerce.

First employed in the now Department of Industrial Relations as a research assistant, Mr Willis then joined the staff of the Australian Council of Trade Unions as a research officer in 1960.

In 1970, he was appointed the ACTU's industrial advocate. After spending about four years on the back bench, Mr Willis became a member of the Opposition Shadow Ministry in January 1976.

He was then spokesperson on Industrial Relations until December, 1977, Economic Affairs (incorporating Treasury, Finance and Economic Development) from December 1977 to January 1983, and Economic Development from January 1983 until March that year.

Following the Bob Hawke-led ALP victory at the March 5, 1983 general elections, Mr Willis was appointed Minister for Employment and Industrial Relations and Minister Assisting the Prime Minister for Public Service Industrial Matters.

He was re-elected to the Parliament in December 1984, and again in July 1987. Mr Willis was Minister for Industrial Relations and Minister Assisting the Prime Minister for Public Service Matters.

Mr Willis has now become Minister for Transport and Communications at a time of great change in the communications sector.

There was the switch to the FM band by some commercial AM stations, new FM radio services, expansion of the Special Broadcasting Service and community broadcasting.

Aspirants to community television licences conducting transmission tests were waiting for a ministerial decision.

The second generation AUSSAT was another area in the planing stages. Communications had undergone considerable deregulation in recent times, and the vested interest groups were pushing for more relaxation.

New uses for the radio spectrum, including an expansion of microwave Multipoint Distribution System also sat on DOTC's agenda.

The Amateur Radio Service also waited for the implementation of examination devolvement, and introduction of at least one new licence grade.

Our Minister also has to deal with the Transport part of his super ministry which includes shipping and aviation.

KENWOOD

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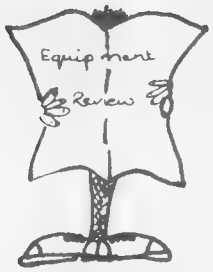



# Equipment Review

**Gil Sones VK3AUI**
*30 Moore Street, Box Hill Vic. 3128*

## ALINCO TWO-METRE HAND-HELD FM TRANSCEIVER

The Alinco hand-held is a small basic two-metre FM transceiver. It is not complicated and works very well. Just the thing to tuck in your pocket or slip in your overnight bag.

When I first opened the box I was amazed at the size of the radio. The works will fit with ease in the palm of your hand. Indeed the radio itself is about the same size as the battery pack which slips onto the bottom of the radio.

Nickel Cadmium batteries are used in the battery pack and included with the transceiver is a charging stand. This charging stand can be used with any source of 13.8 Volts DC. The car electrical system is just fine. Any mains operated 13.8 Volt supply at home will be okay. The auxiliary output of the main DC Supply would be excellent. Alternatively a plug pack could be purchased if you wished.

A charging stand which uses DC input is really much better than some of the plug packs which occasionally appear. Plug packs, by the way, have to be of an approved type for use in Australia. This is not just a whim but is for a number of very good safety reasons. An adaptor plug or bending the pins is just not on.

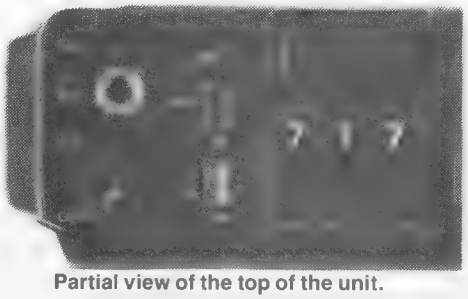
With such a simple radio the instructions can be accommodated adequately on one large sheet folded into a smaller book sized folder. As well as the instructions a circuit diagram and block diagram is provided. Very useful but I do not think very many of us will be delving inside. The use of very small components of high reliability and four layer circuit boards rules out the plumbers iron repairs and modifications.

Frequency setting is by small thumb-wheel switches which means that putting it in your pocket won't result in a strange frequency being keyed up. A set of rotary frequency setting switches are provided along with an adjusting tool to provide a memory channel. The tool is thoughtfully attached to the wrist strap so you can't lose it. By operating two push buttons it is possible to swap between memory channel and the main frequency or to monitor both channels for activity.

Battery life is, of course, limited but a battery save function is available via a slide switch. This enables extended monitoring to be carried out with a much reduced battery drain.

Low power operation is also provided so that where a few hundred milliwatts will suffice battery drain can be reduced.

Normal power output is in the two watt class. Unfortunately I could not accurately measure the output power as my power meter is not intended for this power level. The output connector is also one I had not seen before and looks to be a cross between an RCA and a Type F. I could convince an RCA adaptor to make the connection but would have preferred a proper adaptor.



**Partial view of the top of the unit.**

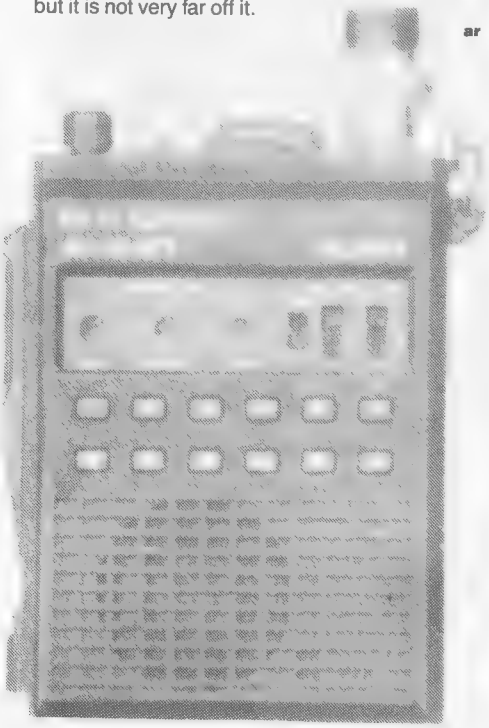
A short rubber duck antenna is supplied and its size compliments the size of the radio.

Dual tone multi-frequency buttons are provided so that dialling through a repeater access to the telephone is possible if you visit the USA. This is not available in Australia as our phone system is different. Still it can be handy for other remote control applications.

On the air I could access many repeaters and even made a contact from inside a city building. That was from the side of the building away from the repeater too. A creditable performance.

Summing up the Alinco is a very serviceable and useful Two-Metre Hand-held FM transceiver. Just the thing for travelling or to take with you any where. Not quite down to Dick Tracey size but it is not very far off it.

ar



**Front control panel of the transceiver.**

**Full-sized view of the transceiver with battery pack attached.**

# Equipment Review

**Ron Fisher VK3OM**
*3 Fairview Avenue, Glen Waverley, Vic. 3150*

## Icom IC-32AT Dual Band FM Transceiver

When Icom bring out a new piece of equipment, you can be sure that they have researched the situation very well. The new IC-32AT certainly has some advanced features and would definitely satisfy the most particular amateur.

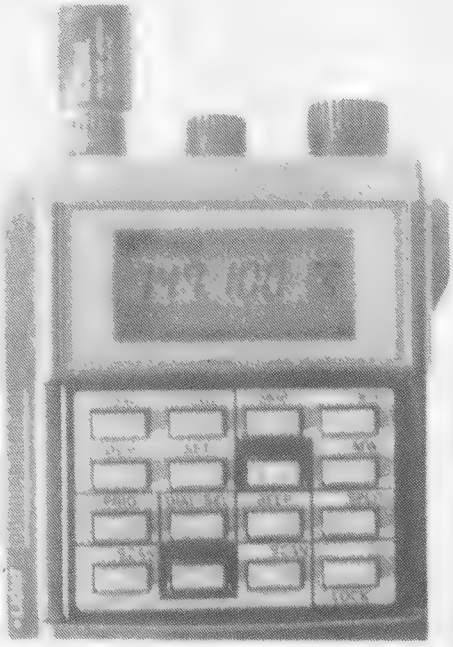
The IC-32AT incorporates the following features: It is a hand-held transceiver with a maximum of five watts output on both the 144 and 430 MHz bands. The actual frequency coverage of the Australian version is 144 to 148 MHz and 430 to 440 MHz. The frequency steps for covering this range is selectable for either of 5, 10, 15, 20 or 25 kHz steps. The transceiver is normally supplied with the BP-70 battery pack which has an output of 13.8 volts, enabling the transceiver to deliver the full five watts output. A variety of other battery packs are available as optional extras. These give a selection of voltage outputs which in turn give different power output from the IC-32AT and many are designed to be used with a rapid charger. In all, there are eight different packs including one to take either dry of nicad battery cells.

There are 20 memory channels provided and these can be set up in any combination on the two bands. One of the more intriguing features of the transceiver is its ability to transmit on one band and receive on the other simultaneously. With two transceivers, it is possible to conduct a full duplex conversation. Presumably, if you had two transceivers at each end you could have full duplex in stereo!

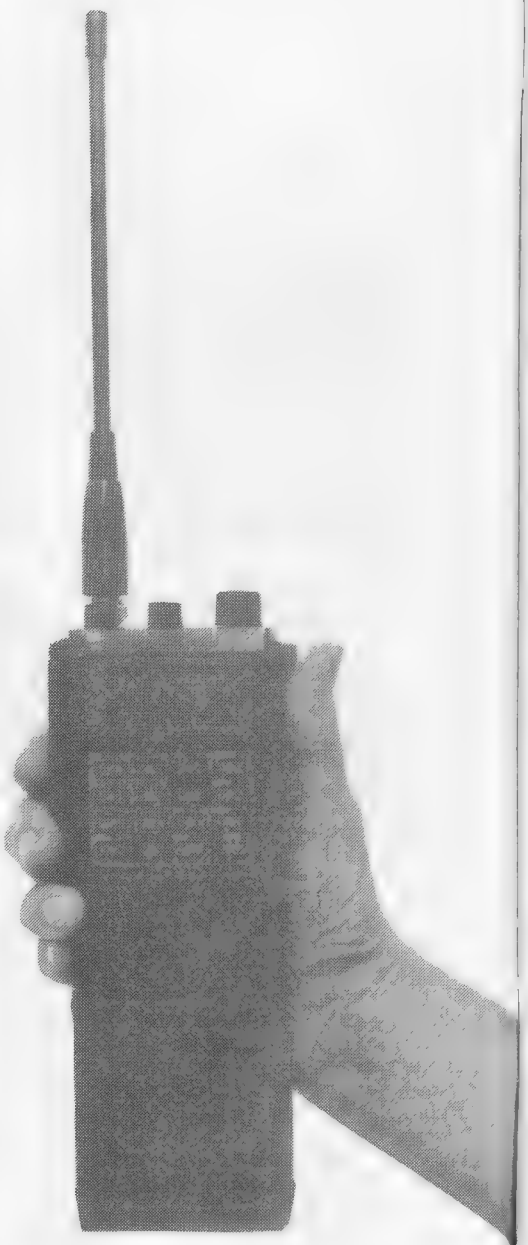
The IC-32 has, of course, a full range of scanning facilities. You can choose full band scan, programmed band scan, where any segment of the whole band is scanned, memory scan plus a selected band memory scan.

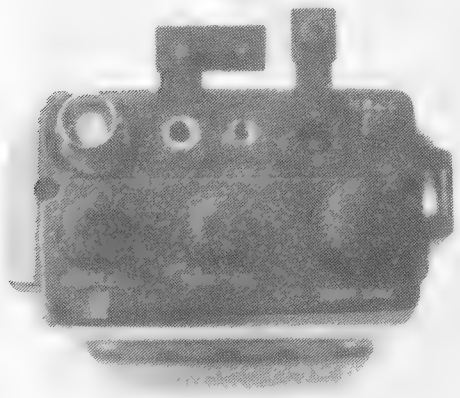
Frequency selection is duplicated with wither keyboard entry or by tuning to the required frequency with the "Main Dial" control. As mentioned above, the tuning steps are separately selected. The LCD dial readout tells the user just what is happening. As well as frequency display, it shows transmitter relative output, received signal strength, memory channel, repeater offset, call channel selection. The display is illuminated for night operation and, like its small brother the Micro Two, one push of the "light" button gives about five seconds illumination. Again, like the Micro Two, a battery saver function is provided to cut the battery drain to about a quarter of the normal receive current if no signal is heard or no controls operated for 30 seconds.

With the relatively high power output and the extreme versatility that this transceiver offers, it does no come in a miniature package, as the illustration shows when compared to the Micro Two. The overall dimensions are 65, 180.5, 35 millimetres (WHD) and it weighs 590 grams. These dimensions are with the normal BP-70 battery pack fitted. This, of course, does not put it into the shirt-pocket category. So if small size is an important consideration, you might have to settle for a single band hand-held.



**Close up view of the controls.**





**Top view of the IC-32AT.**

### ON AIR

After loading up the memories with the usual local repeater and simplex channels, I got to work to try the transceiver out on the air. I should say that it was necessary to study the instruction book at some length to actually get the required frequencies into memory. Of course, the transceiver produces the usual 'beep' sounds to signify that all is okay. Entering memories requires the use of the function button which is not on the keyboard, but around on the side near the PTT button. In addition to these, there are two other buttons on the side, the display light and one labelled 'moni-

tor'. This has two functions — firstly, it opens the squelch, and allows you to hear a weak signal below the squelch level. But if the channel you have selected happens to have a repeater offset programmed, the 'monitor' button, in addition, selects repeater input frequency. Quite a neat idea!

The first impression of the transceiver was the very poor received audio quality. The sound was more like a miniature ear piece turned up loud rather than a proper loudspeaker. With an external speaker plugged into the external speaker socket, the quality sounded quite normal. At the same time, the actual acoustic output appeared to be very low. If the transceiver was to be used mobile, an external speaker would be essential.

The dual band antenna supplied with the transceiver measured 18.5 centimetres long and appeared to perform very well. Checking the efficiency by measuring the noise received back from a local repeater, it was 6 dB better than the shorter Micro Two antenna on two metres. Unfortunately, no comparison antenna was not available to check the performance on 430 MHz.

### ON TEST

Unfortunately, due to the very short time that the transceiver was available to us, we were unable to carry out many of the normal range of tests. Power output was checked on each band and found to be a little down in the specified output. At 147 MHz, 4.7 watts was indicated and at 440 MHz 4.2 watts. This is a little down on the specified 5.5 and 5 watts. These tests were carried out with the battery fully charged. As a point of interest, the wall charger supplied with the IC-32AT is not compatible with other Icom hand-held transceivers as a smaller diameter plug is used to connect to the battery pack. However, Icom still retain the LED indicator on the battery to show that charge is taking place.

Receiver performance was subjectively checked. On a comparative basis sensitivity was rated as excellent, and it was noted that there was a lack of spurious signals when the transceiver was in the memory scan mode. Spurious rejection was rated better than most hand-helds and better than some mobile-base units.

The S-meter was checked against our signal generator with the following results. There are seven segments on the bar graph.

| | |
|---|---|
| Segment 1 (S1) | Mute open |
| Segment 2 | .5 uV |
| Segment 3 (S5) | .7 uV |
| Segment 4 | .9 uV |
| Segment 5 (S9) | 1.2 uV |
| Segments 6 and 7 (S9+) | 1.5 uV |

In general, this shows that there either is a signal being received or not. On transmit the meter showed full scale with maximum power out and three segments (S5) on low power output.

Transmit audio quality was rated as good with plenty of punch to the sound.

Received audio was as commented on earlier, rather poor.

Battery life, as you may expect, is very dependent on how long you talk. At five watts output, the current drain is a massive 2 to 2.2 amps. I calculate that you would have about 15 minutes talk time maximum. Even on low power the battery drain is about one amp.

### INSTRUCTION MANUAL

The IC-32AT Instruction Manual has a total of 52 pages. This is divided into 12 basic sections that cover amongst others, control functions, pre-operation, basic operation, memory and call operation, scan and watch operation and set mode. The only technical data supplied is a schematic diagram. A separate sheet gives data on the optional battery packs and other options such as carry cases, chargers and speaker microphone and headset combinations. While the rather complex operating procedures are very well covered, there is no technical information at all.

Overall, I would rate the manual at six out of 10.

### CONCLUSIONS

This piece of equipment certainly offers a wide range of operating possibilities. If you are considering the purchase of a hand-held transceiver for each of the two bands then the IC-32AT might well be the most economical approach. It is, however, rather large compared to the latest single band units.

Apart from the poor received audio quality, the set offers a high standard of performance.

The transceiver used in this review, serial number 01182, was supplied by Icom Australia, to whom all inquiries should be directed.

**ar**

# A BROADCAST WITH A DIFFERENCE!

**John Taylor VK3AJT**
*Unit 17c, Hi-Surf, 150 The Esplanade, Surfers Paradise, Qld. 4217*

## We tested the rig on the way to Melbourne.

During World War II, AWA produced a service radio known as the FS 6. FS stood for Field Service. It was, by present standards, extremely primitive but it worked, and often too!

The writer has a number of these sets bought through disposals. Broadcast Station 3GL, Geelong also used one as communication between sporting events and their studio.

I had known their chief radio man, Jack Mathews, since school days, and we talked about the possibility of directly feeding the output of an FS 6 into the modulator of 3GL, not to the studio for re-announcement by their announcer, but *direct* into the transmitter. Reg Gray, then 3GL Manager, agreed to allow us to "give it a try".

Williamstown to Geelong was, in those days, about the limit of possibility, but we set up an aerial on the yacht *Windarra*. It was agreed that the Williamstown to Geelong Yacht Race would be the subject of the broadcast! The author was the commentator, the year circa 1948.

The rig was tested en route to Melbourne for the race and everything seemed to be in order. The following day the broadcast was made on schedule as the race progressed. Everything worked perfectly and many congratulations were received, not only on the radio site, but also on the description of the race.

Two or three more broadcasts of this race were made from the *Windarra*, until a new yacht, *Yeulba*, was purchased.

It was agreed that the excellent broadcast descriptions of the Williamstown to Geelong Race would continue from *Yeulba*.

One year, because of business commitments, Neil McAllister, owner of *Yeulba* was unable to sail the boat in the race so it was agreed that the forward hand, the late Eustace Wilson, would take the helm for the big race.

By this time, 3GL had two FS 6s direct back to their transmitter at Grovedale. One was on the *Yeulba* the other at the finishing-line off the Yarra Street Pier.

The race began from Williamstown in a strong north-easterly wind. Once around the Gellibrand Lighthouse Eustace called for the spinnaker. "Red" Brayton and myself, working forward, brought the small storm spinnaker up through the forward hatch but Eustace immediately ordered that we stow it and set the big spinnaker. The author suggested that this could pull the mast out, but Eustace was adamant, repeating his order with much gusto and colourful language.

So, up went the big spinnaker and with it the breaking out of the stops, the backstay went, followed by the highfield levers on the weather side crumpling like a concertina! Then the upper weather shroud went and we were in real trouble!

Just at this time the monitor radio in the cabin came to life: "We are now crossing direct to the Royal Geelong Yacht Club yacht *Yeulba*, for a broadcast description of the start of the Williamstown to Geelong Yacht Race."

A young member of the crew quickly had a "handy billy" tackle from the swinging back stay to it's chain plate on the deck, thus saving the mast. Packing up the mess, a jib was set behind the mast and a safe, but monotonous, course set for Geelong.

Off Werribee the crew listened to the announcer, King Lloyd, announcing the finish of the race at Geelong. Finally he announced: "I regret to say that *Yeulba* has lost her mast and is now back in the Royal Yacht Club at Williamstown."

He was immediately advised that the yacht was off Werribee in no uncertain terms and language.

This announcement came loud and clear over 3GL, much to the consternation of Reg Gray.

Later further broadcasts were made from the three-masted schooner, *Ile Ola* but eventually the practice lapsed.

Having followed wireless from 1920 through to radio, and as an amateur radio operator, I believe that the Royal Geelong Yacht Club and 3GL can take credit for the *very first ever* direct transmission broadcast of an ocean yacht race direct from the yacht to the modulator of the broadcast station.

Other readers may like to comment on this belief!

**Eric Jamieson VK5LP**
*9 West Terrace, Meningie, SA. 5264*

# VHF UHF — an expanding world

***All times are Universal Co-ordinated Time and indicated as UTC***

## AMATEUR BANDS BEACONS

| FREQUENCY | CALL SIGN | LOCATION |
|---|---|---|
| 50.005 | **H44HIR** | *Honiara* |
| 50.005 | **ZS2SIX** | *South Africa* |
| 50.011 | **JA2IGY** | *Mie* |
| 50.020 | **JE6ZIH** | *Japan* |
| 50.028 | **JA7ZMA** | *Fukushima City* |
| 50.066 | **VK6RPH** | *Perth* |
| 50.075 | **VS6SIX** | *Hong Kong* |
| 50.080 | **KH6JJK** | *Hawaii* |
| 50.110 | **BY4AA** | *China* |
| 51.020 | **ZL1UHF** | *Auckland* |
| 52.013 | **P29BPL** | *Port Moresby* |
| 52.100 | **ZK2SIX** | *Niue* |
| 52.200 | **VK8VF** | *Darwin* |
| 52.250 | **ZL2VHM** | *Manawatu* |
| 52.320 | **VK6RTT** | *Wickham* |
| 52.325 | **VK2RHV** | *Newcastle* |
| 52.330 | **VK3RGG** | *Geelong* |
| 52.345 | **VK4ABP** | *Longreach* |
| 52.370 | **VK7RST** | *Hobart* |
| 52.420 | **VK2RSY** | *Sydney* |
| 52.425 | **VK2RGB** | *Gunnedah* |
| 52.435 | **VK3RMV** | *Hamilton* [1] |
| 52.440 | **VK4RTL** | *Townsville* |
| 52.445 | **VK4RIK** | *Cairns* |
| 52.450 | **VK5VF** | *Mount Lofty* |
| 52.460 | **VK6RPH** | *Perth* |
| 52.465 | **VK6RTW** | *Albany* |
| 52.470 | **VK7RNT** | *Launceston* |
| 52.485 | **VK8RAS** | *Alice Springs* |
| 52.510 | **ZL2MHF** | *Mount Climie* |
| 144.022 | **VK6RBS** | *Busselton* |
| 144.400 | **VK4RTT** | *Mount Mowbullan* |
| 144.410 | **VK1RCC** | *Canberra* |
| 144.420 | **VK2RSY** | *Sydney* |
| 144.430 | **VK3RTG** | *Glen Waverley* |
| 144.445 | **VK4RIK** | *Cairns* |
| 144.445 | **VK4RTL** | *Townsville* |
| 144.465 | **VK6RTW** | *Albany* |
| 144.470 | **VK7RMC** | *Launceston* |
| 144.480 | **VK8VF** | *Darwin* |
| 144.485 | **VK8RAS** | *Alice Springs* |
| 144.550 | **VK5RSE** | *Mount Gambier* [1] |
| 144.600 | **VK6RTT** | *Wickham* |
| 144.800 | **VK5VF** | *Mount Lofty* |
| 144.950 | **VK2RCW** | *Sydney* |
| 144.950 | **VK3RCW** | *Melbourne* |
| 145.000 | **VK6RPH** | *Perth* |
| 432.066 | **VK6RBS** | *Busselton* |
| 432.160 | **VK6RPR** | *Nedlands* |
| 432.410 | **VK1RBC** | *Canberra* |
| 432.420 | **VK2RSY** | *Sydney* |
| 432.440 | **VK4RSD** | *Brisbane* |
| 432.445 | **VK4RIK** | *Cairns* |
| 432.445 | **VK4RTL** | *Townsville* |
| 432.450 | **VK3RAI** | *Macleod* |
| 432.540 | **VK4RAR** | *Rockhampton* |
| 1296.198 | **VK6RBS** | *Busselton* |
| 1296.420 | **VK2RSY** | *Sydney* |
| 1296.440 | **VK4RSD** | *Brisbane* |
| 1296.445 | **VK4RIK** | *Cairns* |
| 1296.480 | **VK6RPR** | *Nedlands* |
| 2304.445 | **VK4RIK** | *Cairns* |
| 2306.440 | **VK4RSD** | *Brisbane* |
| 10445.000 | **VK4RIK** | *Cairns* |

1. The only beacon information this month is to report that VK3RMV on 52.435 and VK5RSE on 144.550 MHz, have not as yet reappeared. No advice has been received that they will not be operational so they are listed for the time being.

### SIX METRES

Having just gone through one of the better winter time Es periods for some years, it was good to receive a letter from Kerry ZL2TPY, outlining the state of six metres from the New Zealand viewpoint.

Kerry commences by saying that, on April 24, at 0926 he and ZL2BGJ heard the first night-time JAs for Cycle 22; on 1/5 at 0540 ZL2TPY worked JA4MBM on 51.110 MHz. In all, he worked 16 JAs, but many more could have been worked had the signals been stronger and less QSB. Signals were being heard as late as 0900. These were their first TEP Class I and Class II FIA for Cycle 22. Areas worked were JA1, 2, 3, 4 and 6. Around the same time, heard HL9CB on 50.110 MHz working VK8ZLX, but failed to get the HL9 to QSY up 1 MHz for a contact. Russian television noted until 0905 and VK Channel 0 television on 51.670 MHz in at 0822 and worked VK2YZN on 52.050 at 0748.

ZL2TPY on 17/5 worked VK4KU at 0300; 27/5 VK2XJ at 0231, VK4KU at 0253; 31/5 VK4KU at 0716 and heard VK1 working VK2 and VK4 during the afternoon. Further openings to VK2 and VK4 on 7/6, 10/6, 14/6 and 30/6.

On 2/7 worked VK4ZAZ, VK4ZAL, VK2XJ, VK2DV, VK4ZJB, VK2ZFS, VK4KU between 0419 and 0642 on 52.050 MHz. This announced the winter-time Es was starting to hot up! On 3/7 worked VK2XJ at 0459, followed by VK3YY, VK3AMK, VK3VF, VK3DFL, VK3ANP, VK3BRZ, VK2ZXC, VK2FLI and VK2ZCP, to provide what was probably one of the largest winter-time openings between ZL and VK. VK8ZLX was also heard. ZL3TIC during this time worked into VK2, 3, 4, 5, 7 and VK8GF, and heard VK6KXW. ZL1, 2 and 3 were also working these stations.

Also on 2/7, Phil FK1TS worked 25 stations in VK2 and VK4 including VK2XC on 52.050 at 0830!

On 4/7, ZL2TPY worked VK2 and on 5/7. VK4. There were further openings between ZL and VK2 and VK4 on 13/7 and 14/7. On 17/7, worked FK1TS at 0310 at 5x9 signals for 20 minutes after which FK1TS continued to work VK2s. Also on 17/7, ZL2AQR and ZL2AGI worked Wal VK4DO, at Townsville, at 0500.

The good conditions continued on 18/7 when Bob ZL3NR heard a VK6 six metre beacon at 0510 while ZL2TPY worked VK4KU at 0459. On 19/7 worked VK3YDE and VK3LK around 0610 while ZL3TIC worked into VK2, 3 and 4.

From this point onwards the winter-time Es conditions tapered off with only spasmodic contacts to VK being available. Kerry said it had been a most memorable period.

Thanks for writing Kerry, we at least know our friends across the Tasman are vigilant and looking for contacts.

### SIX METRES IN VICTORIA

Maurie VK3XEX, from Rokewood Junction, has written to confirm what a great month July had been on six metres. On 4/7, from 0344 worked VK4LE, VK4ZAL, VK4WF/P and VK4ALM. On 7/7, from 0457, VK2FKZ, VK4ZOJ, VK4ZDK and VK4CEU; 12/7 from 0420 VK4ZAL, VK4KU and VK4CEU; 18/7 from 0252 VK4DLW, VK4KU, VK4APG and VK2CN; 21/7 from 0504 ZL2KT, ZL2AGI, ZL2QS, ZL2UBG and ZL2BGJ; 23/7 0515 VK4PU; 24/7 0323 VK4LE.

25/7 was a very great day. From 0135 ZL2KT, ZL3AAU, ZL3ADT, VK2GP, VK2AAK, VK4ZAL, VK2AT, VK2ZER, VK4APG and VK4ALM. 26/7 from 0100 ZL3TIC and ZL3OF; 26/7 from 0210 VK2BJU, VK4DO, VK4ZAL, VK4ZJB/M, VK4LE and VK4ZAZ.

Maurie said his QTH is surrounded for 360 degrees by hills 80 to 120 metres high and to prove it sent me a colour print! (I know the feeling, Maurie, I was in a similar location previously at Foreston). However, despite the limitations, Maurie has worked on six metres KH6, VK0, YJ8, VK9, ZL, JA, H44, FK8, 3D2, ZK2 and P29, all with his TS-600 running 10 watts.

A final comment from Maurie says there is some delay with the Ballarat 432 MHz beacon, but advice will be sent when it is operational. Thanks for the letter.

### TWO METRES IN VICTORIA

John VK3ZJC, writes that the bands above 52 MHz have not been "exploding with DX" but there has been some interesting activity.

The aircraft enhancement path to Canberra and Sydney continues to provide poor contacts, despite the high level of mid-winter sun noise. VK1BG has been worked on 144 and 432 MHz every weekend; he is the most consistent Canberra station at VK3ZJC. Other contacts on 144 to VK1GL, VK1VP, VK1BUC and VK2ZAB. Heard VK2DVZ and VK2ZRE. On 432 MHz, contacts with VK1AU, VK1VP, VK2BE and VK2ZAB.

John is still trying to work Eddie VK1VP, via aircraft enhancement on 1296 MHz. In an effort to clinch a contact, Eddie went portable on 10/7 and 17/7. The only results were a burst of a few seconds on 17/7 with no positive identification.

John advises he is transmitting as follows:
Times: Saturday and Sunday mornings approximately 2215 to 2330 UTC.
Frequency: 1296.000 MHz.
Mode: CW approximately 10 words per minute; will go to SSB if anything is heard!
Cycle: On the minute and half minute, synchronised to WWV, 15 seconds transmit "VVVV de VK3ZJC VK3ZJC" then 15 seconds receive.
Notable contacts: 12/6 marginal two metre tropo opening to Mount Gambier, VK5DK worked 5x4. 24/6 to 26/6: Good openings to Adelaide area. Worked VK5NY on 52, 144 and 432 MHz. Also on two metres VK5DX and VK5LP.

3/7: VK2DVZ (Taree) heard 5x6 on 144.200 at 2225, apparently aircraft enhancement plus a strong meteor ping but not long enough to work him. 16/6 on 432 worked VK1BG, VK1VP and VK2BE.

Assorted news items: Roger VK3XRS, near Bairnsdale now has 100 watts on two metres and has erected a 40 foot long VK3AUU Yagi. He also operates on 432 with 1296 MHz in the pipeline.

Mike VK3APW, now has 400 watts and four long Yagis on two metres. On 432 MHz he has just put up 108 elements and is working on a 400 watt amplifier.

Doug VK3UM has reappeared on 432 MHz after completing rotator renovations. David VK3AUU, is also back in action on 52 and 432 MHz.

Arie VK3AMZ, now has one watt out on 1296. VK2ZRU should also be added to the list of 1296 MHz stations.

The packet radio interference on 144.100 MHz and voice repeaters has decreased. The diplomatic requests to them to keep 144.800 clear appear to have borne fruit. No doubt, however, if the "packet gateway" goes ahead on this frequency, they will be unable to avoid 144.800 (the VK5VF beacon frequency . . . VK5LP) even if they are willing. Sooner or later the problem may have to be faced in Adelaide itself, when the packet links are extended that far.

It appears the eastern suburbs of Melbourne are being plagued by unlicensed FM stations on two metres, on frequencies as low as "Channel 4000" (ie 144.000). Various attempts are being made to trace these illegal operators.

Thank you for your letter John, and hope you make it to Eddie VK1VP, on 1296 MHz soon.

## SOUTH AFRICA

Thanks again to Hal Lund ZS6WB, for further "VHF News" newsletters. It appears the beacons in that country are rather spasmodic in operation except for ZS1STB, on 50.904 MHz which runs 25 watts to a four-element beam aimed at Pretoria, which means a northerly direction and includes some sections of Europe. This beam heading will not be very helpful towards any possible VK contacts. ZS2SIX on 50.005 MHz which also radiates north/south is still off the air, while ZS5SIX on 50.075 MHz with 10 watts to a halo antenna is listed as present status is unknown.

ZD8VHF on Ascension Island in the South Atlantic (50.032.5 MHz) is presently off the air with its operator ZD8MB in the UK.

VK operators, particularly those in Perth, should remember the distance to South Africa from Perth is about the same as Adelaide to Hawaii and the latter path has been bridged many times in the past. With the proper vigilance on both sides of the Indian Ocean and with the improving Cycle 22 it must surely become possible for some stations to span that path. This will be a situation where liaison on 10 metres will help via 28.385 and 28.885 MHz, or the South African VHF Schedule Liaison frequency of 7.045 MHz. The DX calling frequency is 50.110 MHz.

The "VHF News" also reports W5UN has enlarged his two metre EME array from 544 to 816 elements (from 32 x 17 elements to 48 x 17 elements) with an improvement of 1.75 dB in overall gain and Dave reports more random QSOs with low power stations since its completion. A good long Yagi with about 150 watts output should be sufficient to QSO with W5UN who operates CW on 144.008 MHz and may be found easier during the last one to one and a half hours approaching moonset.

## WESTERN AUSTRALIA

The July issue of *The West Australian VHF Group Bulletin* reports the Perth six metre, two metre, 70 centimetre, 1296 MHz and 10 GHz beacons are off the air at that time, for an overhaul and relocation to the Channel 7 television transmitter site.

The report also states "during the revamp a new six metre beacon will be established on 50.066 MHz with the call sign of VK6RPR. This will enable study of the puzzling differences in propagation between closely spaced frequencies in the six metre band. Two cavity resonators have been received from Will VK6UU, for the new and existing six metre beacons, which will use a common antenna.

"Peter VK6KXW, has graciously offered to supply and install the mains wiring to the new rack-mounting panel which will house all of the beacons."

## NORTH AMERICA

From Bill Tynan's *World above 50 MHz* in *QST* for August comes news of some very exciting times on six and two metres in that part of the globe.

Bill started off by saying it appeared the big news was going to be the lack of Es for their summer, but from about June 1, the position changed dramatically.

On 31/5 KL7IKV reported he and AL7C, both in Alaska, worked some half-dozen JAs between 0530 and 0610.

Beginning on June 5, both six and two metres erupted into history making Es openings. For the second year in a row two metres put on a display of double-hop Es with an outstanding contact between WA4CQG and W7YOZ, at 0250 for a calculated distance of 3496 kilometres (2173 miles), which appears to be a new two metre North American terrestrial record.

On 6/6 such good conditions prevailed from 0545 to 0730 that two log pages of JAs were worked in call areas 1, 2, 3, 4 and 7 to K6 and K7 US areas.

W3XO said the eastern States had their turn on 6/6. The first overseas station Bill heard was G3POI who was worked at 1704 with signals about 5x2.

Then followed G4ASR, PA0OOS, two more Gs then PA3DOL and PA3AMF. Seven more Gs were worked until the band faded at 1746. At 2013 the signal of DXpedition station FP/KA3B on St Pierre Island burst through, then about 2100 the OX3VHF beacon on Greenland came through followed by working OX3LX. At 2115, GW3MI was heard followed by a steady stream of Gs, GWs, GJs and two GIs plus LA3EQ, with signals up to S7 at times. This gave Bill W3XO three new countries. Within the time span of the two openings Bill managed to work 39 different G station, three GWs, three PAs, OX3LX and FP/KA3B. Further north in Baltimore, W3WFM did even better, working nearly 100 Gs, 3 GIs, 6 GJs, 10 GMs, 15 GWs and 5 PAs, plus EI, LA, F, OX and FP! The opening was so good that WB2IFC/4 on Chincoteague Island, Virginia, worked 189 European stations using 12 watts to a five element beam.

From the other side of the Atlantic, GJ6OZB from the Isle of Jersey reported working 58 North American stations in 10 States and three Canadian provinces and KP4CIE.

Over the next few days the band remained open but seemed tame by comparison, although the VP5D beacon was heard and contacts were made with HH7PV, C6ANY, CT1DTQ, CT4KQ and 9H1BT. As Bill's notes were terminated on June 10, (equivalent to our December) it will be interesting to read next month what transpired for the remainder of their summer Es period.

What appears to be quite a revelation from all this, is the large number of stations now operational from the European area on 50 MHz. It goes to prove that it is possible for amateurs to operate in conjunction with television stations without too much trouble. New York to London is about 5261 kilometres (3270 miles) or roughly about the same distance from Perth to Christchurch, New Zealand, with the former being over more water. Such contacts would be triple-hop transmissions although the passage between Perth and Christchurch would probably be more difficult because of the mass of stations operating on the eastern sea-board of Australia compared with the few stations between the US and Europe.

## NEWS FROM JAPAN

My very regular contributor, Graham VK6RO, sends the following information from *CQ ham radio* in Japan, for July 1988. From the information forwarded, it is possible to determine the degree of six metre activity throughout the Pacific area together with stations operating in the Asian region. I find the information most valuable and I hope readers find likewise. The dates of contacts may be somewhat dated due to publishing time-lags, but the availability of call signs and call areas is most useful. I suggest you extract the call signs listed and familiarise yourself with the area or island involved if you are not well informed on the matter of prefixes!

Most contacts with stations outside Australia have been around 50.110 MHz and Australian contacts mostly centre around 52.050 MHz. Obviously, the Japanese stations are monitoring both sections of the six metre band.

During the period from 22/4 to 22/5 contacts were made with the following stations:
VK4s, VK6s, VK8s, VK9NS, FK8EM, H44GR, P29ZEF, P29PL, KG6DX, 3D2MP, H44DL, HL9CB, P29HS, YC0UVO, XX9TA, VS6XRC, VS6XRC, BY4AA, HL2AOS, H44GP, HL1ES, HL0BIC, KX6DS, FO0AQ, HL5BNU, HL5PQ, 5W1GP, 9N88ITU, BY1PK, HL2GS, HL8N/2, HL1IEJ, HL1INQ, HL1ST, HL9TM, A35AS, plus a number of stations on JD1.

In most cases, the stations listed were worked on a number of occasions, with many contacts to the VK stations. The majority of contacts were made in the afternoons and early evenings though some contacts were quite late in the evening. As reported earlier in these notes, late in May the JAs were contacting as far south as New Zealand.

## GENERAL INFORMATION

A note from Ken VK3AH, mentions advice contained in the *DX News Sheet* for August 3, 1988 (published weekly by the RSGB), that Fred VP8PTG, will be operational from the Falkland Islands from the end of August running 250 watts of SSB on six metres. Considering that US stations fairly regularly work into Argentina, there seems no reason why they should not eventually work VP8PTG. It will also be strange if JA4MBM or JA1VOK do not work Fred in due course.

Ken VK3AH has also asked me to forward my notes at least a day earlier than previously because they have not been arriving on time in Melbourne. It seems Australia Post needs more than five days to ensure the arrival of a letter in Melbourne, which is an incredibly long 730 kilometres from Adelaide!

Therefore, would correspondents please note, if you can remember that most months I will need to post my letter to Melbourne no later than the 12th, as many of my deadlines are around the 18th of the month, you will be helping everyone. Thanks.

For the remainder of this year my deadlines are: 19/9, 17/10 and 8/11, with the latter being so early to allow for preparation of the January 1989 issue prior to the Christmas break.

It has been a long time since I have received any news from the North Queensland area. Perhaps operators have been too busy working JAs on six metres with the return of suitable TEP conditions. Surely there must be some activity on two metres and 70 centimetres.

I would be equally pleased to hear from readers in Perth, an area which suffers much from VHF/UHF isolation. Reports can be read of FM activity, fox hunts, etc, but little is available on other activities.

Whilst on the question of seeking further information, it would be nice to see the Six Metre Standings Box truly reflecting the state of countries worked from a greater number of people. There are many first rate operators with plenty of countries worked whose call signs do not appear in the six-monthly list. This seems a great pity — it is not an ego thing — it is simply a recognition of past efforts. The requirements are straightforward and are repeated each six months when the list appears. The last one was printed in August 1988 and the next one will be February 1989. Details need to be on my desk by December 15, 1988.

## CLOSURE

Without becoming repetitive by listing the monthly contacts between Adelaide and Melbourne stations (and those in between) there is little else to report at the moment.

Newcomers are advised to watch six metres closely during October when long distance contacts across the Pacific are a distinct possibility. Although they can occur at any time, there is an increased likelihood up to 0000 UTC. The New Zealand gang is always poised looking for contacts on any band. Also, from November onwards, it is usual to expect an increase in Es contacts. If the year is normal this will extend into January.

Calling frequencies are 52.050, 144.100, 432.100 and 1296.000 MHz. If a distant station insists on staying on a calling frequency to work a horde of stations, then it is courteous to limit yourself to a brief contact and leave the frequency for the next station in line. It is also advisable to use standard phonetics, fancy ones may be misunderstood.

Closing with two thoughts for the month: *It is said a successful person is one who makes hay from the grass growing under other people's feet,* and *Efficiency is getting other people to do the tasks you dislike.*

73. The Voice by the Lake.

**ar**

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# Contests

**Frank Beech VK7BC**
*FEDERAL CONTEST MANAGER*
*37 Nobelius Drive, Legana, Tas. 7277*

## CONTEST CALENDAR

***OCTOBER 1988***

1 — 2 VK-ZL-Oceania DX Contest (Rules August issue) SSB Section
8 — 9 VK-ZL-Oceania DX Contest CW Section
8 — 9 IRSA Radiosporting Contest
— 9 RSGB 21/28 MHz Phone Contest (Rules August issue)
— 16 RSGB 21 MHz CW Contest (Rules August issue)
29 — 30 CQ WW DX SSB Contest

***NOVEMBER 1988***

11 — 13 Japan International DX Contest (Rules August issue)
12 — 13 European RTTY Contest
12 — 13 OK DX Contest Phone and CW (Rules September issue)
— 12 ALARA YL/YL Contest (Unconfirmed date)
— 13 BATC SSTV/FSTV All Bands Contest
26 — 27 CQ WW DX CW Contest

## JOHN MOYLE MEMORIAL FIELD DAY CONTEST — 1988 RESULTS

**24-HOUR DIVISION** **6-HOUR DIVISION**

### SECTION (a) PORTABLE FIELD STATION. PHONE, SINGLE OPERATOR

| CALL | QSOs | SCORE | CALL | QSOs | SCORE |
|---|---|---|---|---|---|
| VK3AJU | 353 | 8899 | VK3YH | 208 | 5086 |
| VK3BJN | 186 | 2685 | VK5QX | 293 | 3728 |
| VK4AG | 30 | 1695 | VK3AFW | 67 | 1855 |
| VK4AHO | 19 | 1595 | VK4VR | 11 | 1345 |
| | | | VK2EMU | 51 | 837 |
| | | | VK2ARZ | 40 | 493 |
| | | | VK3VF | 19 | 270 |
| | | | AX3LC | 13 | 183 |

### SECTION (b) PORTABLE FIELD STATION. CW, SINGLE OPERATOR

| | | | |
|---|---|---|---|
| VK3CQ | 175 | 5294 | No entry |

**The portable shack of VK3CQ.**

### SECTION (c) PORTABLE FIELD STATION. OPEN, SINGLE OPERATOR

| | | | |
|---|---|---|---|
| VK5AZF | 152 | 2317 | No entry |

### SECTION (d) PORTABLE FIELD STATION. PHONE, MULTI-OPERATOR

| | | | | | |
|---|---|---|---|---|---|
| VK4IZ | 824 | 12448 | AX4WIN | 377 | 5986 |
| VK3BCG | 300 | 11172 | VK3BSH | 379 | 5057 |
| VK4WIE | 479 | 9889 | VK3EMJ | 90 | 1895 |
| VK3BML | 200 | 6388 | VK4WIM | 83 | 1283 |
| VI88ACT | 234 | 4397 | VK5SMO | 27 | 525 |
| VK4WIT | 436 | 4281 | | | |
| VK2CAM | 188 | 2635 | | | |

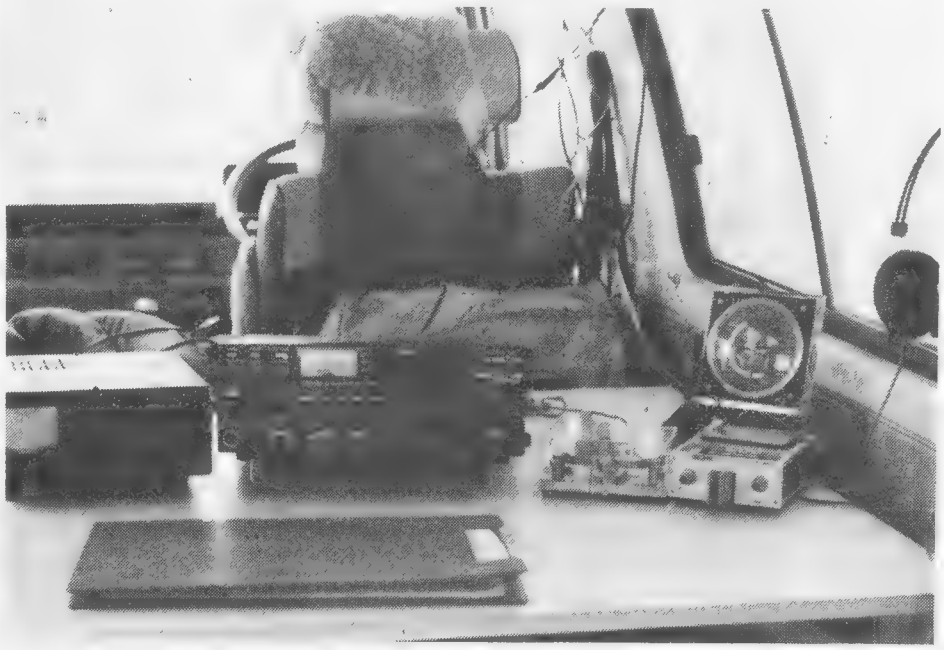
### SECTION (e) PORTABLE FIELD STATION. CW, MULTI-OPERATOR

**No entries**

**The 144 MHz Yagi used by VK3AJU was supported by the car roof rack and rotated by armstrong-rotation.**

### SECTION (f) PORTABLE FIELD STATION. OPEN, MULTI-OPERATOR

| | | | | | |
|---|---|---|---|---|---|
| VK3CNE* | 601 | 29165 | AX4YX | 148 | 2945 |
| VI88WA | 1005 | 19275 | VK2FLS | 46 | 839 |
| VK2HZ* | 591 | 15806 | | | |
| VK2WG | 462 | 13113 | | | |
| VK3APC | 420 | 9720 | | | |
| VK5LZ | 262 | 5338 | | | |
| VK4WIR | 194 | 4914 | | | |
| VK5APA | 247 | 4617 | | | |
| VK5ARC | 233 | 3549 | | | |



**The operating desk.**

**VK3CQ operated a Field Day Station from Mount Hotham.**

| | | |
|---|---|---|
| VK4HM | 70 | 1101 |
| VK4WIG | 64 | 828 |

**SECTION (g) PORTABLE FIELD STATION. VHF**

| | | | | | |
|---|---|---|---|---|---|
| VK5BW | 95 | 15528 | VK4WIZ/2 | 132 | 19921 |
| VK3YSY | 165 | 12021 | VK3YEJ | 24 | 2725 |
| VK4ANN | 23 | 1776 | VK4RX | 8 | 1230 |
| VK4ZXZ | 17 | 1616 | VK4BSP | 16 | 965 |
| | | | VK5DI | 5 | 380 |
| | | | VK2XGX | 23 | 322 |
| | | | VK5BDM | 8 | 124 |

**SECTION (h) HOME STATION, EMERGENCY POWERED**

| | | | | | |
|---|---|---|---|---|---|
| VK2MB | 296 | 3182 | VK7NXA | 129 | 1454 |
| VK2KL | 215 | 2503 | VK3CBT | 68 | 842 |
| VK4AOE | 57 | 647 | VK3BDU | 19 | 212 |
| | | | VK2JM | 1 | 20 |

**SECTION (i) HOME STATION, MAINS POWERED**

| | | | | | |
|---|---|---|---|---|---|
| AX3XB | 54 | 1620 | VK2AGC | 95 | 608 |
| VK2OE/1 | 81 | 534 | VK3BDJ | 56 | 563 |

**The VK3AJU generator — state-of-the-art BP "Photovoltaic Generators).**

A number of stations did not fully understand the scoring with respect to the New Zealand Field Day Contest stations, perhaps it was not made clear enough in the rules that I published in February. However, the logs have all been rescored to allow for this misunderstanding and now reflect the fact that these ZL stations who gave the branch number after the signal report are counted as being portable field day stations and attracted the same score as the VK portable stations.

Some comments that I received with the entries: There's nothing like a first adventure with solar panels to turn an easy-going, well-balanced amateur into an obsessive weather watcher and neurotic listener to weather forecasts. . .particularly if he lives in Melbourne's fickle climate. All up it was an educational experience for somebody who had never seen a solar panel at close quarters until the contest loomed. . .and a very rewarding one since I am claiming bonus points for all QSOs. —VK3AJU.

| | | | | | |
|---|---|---|---|---|---|
| VK2KW | 68 | 487 | VK3DHV/2 | 61 | 286 |
| VK5LP** | 9 | 455 | VK6DA | 15 | 123 |
| VK7KZ | 44 | 368 | AX3LC | 9 | 60 |
| VK4PT | 44 | 321 | | | |
| AX3KS | 15 | 220 | | | |
| VK1LF | 28 | 217 | | | |

**SECTION (j) SWL**

**No entries.**

I thank the Adelaide Hill ARS for sending me an excellent check log under the call sign of VI88SA. This station operated in the (f) section. VK3ZI sent in a useful VHF check log. Thank you both. —FCM.

* Denotes Natural Powered Station.

** Denotes VHF.

Once again Gil VK3CQ has won the President's Cup with his CW score of 5294 points. Congratulations, Gil.

The number of logs on a State by State basis is as follows:

VK1 — 2; VK2 — 14; VK3 — 21; VK4 — 18; VK5 — 10; VK6 — 2; VK7 — 2; VK8 — 0; VK9 — 0.

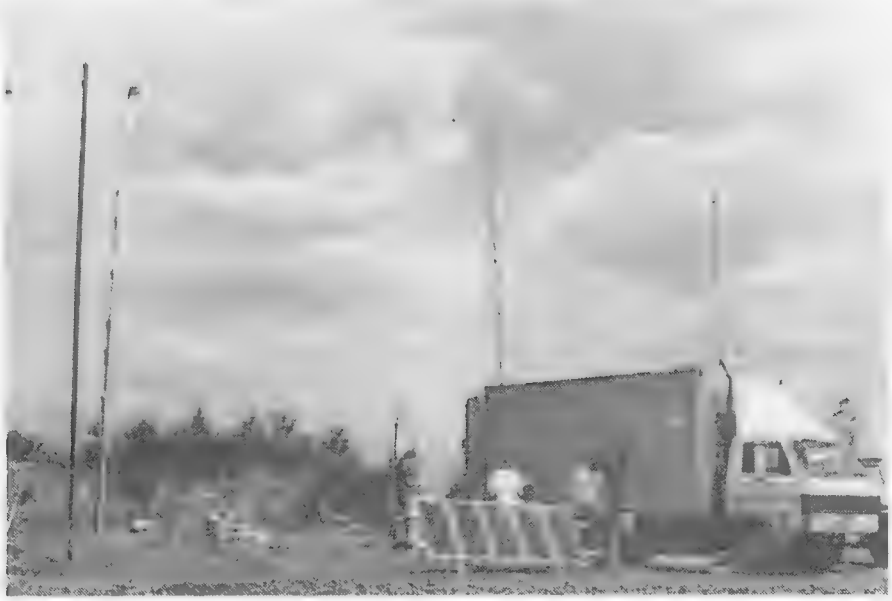
**Outside the VK3AJU shack on Mount Hotham. Inside the shack was as hot as an oven!**

Once again the North East Radio Group enjoyed the John Moyle Field Day. The natural power was once again provided by the usual solar panels/wind generator combination. Some of the batteries were charged by the solar panels before the field day, and there was more wind this year, so the wind generator was able to contribute a significant amount of power. . .As the aim of the John Moyle Field Day is to gain experience in setting up an emergency station in the field, the field day must remain an "open" contest; ie be an all band field day, as a true emergency would require a station to be able to operate both HF and VHF/UHF frequencies. —VK3BMV.

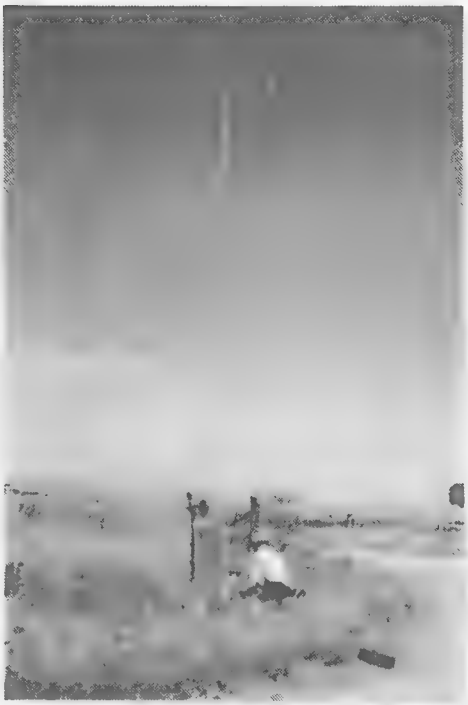
Once again a great contest, the weather was great, a fine sunny day only a chilly night to worry about. Now I know why they call Mount Baw Baw village, as "alpine village". Once again the multipliers helped greatly in building up the score this year. Possible a scoring system based on the Locator Squares might be possible. —VK3YSY.

The North East Radio Group battery-bank.

The operators of VK3CNE.



The VK3CNE site showing the wind generator, solar panels and the shack — a furniture van.



**VK5DI operated portable near Narridy in South Australia, (PF96E00).**

This was the first time that I have fielded a VHF only station in the John Moyle Memorial Field Day Contest, and it has been found to be a very trying experience. Firstly, the amount of work involved in erecting both vertical and horizontal antennas for each band was enormous compared with erecting a few halfwave dipoles. As you will notice in the log sheets, there were many hours of no activity. This was not for the lack of trying, there just were not the stations on the air. It seems that most VHF operators pack up their gear after the Ross Hull Contest. I have contended for nearly 20 years that there should be a national VHF/UHF field day, like in New Zealand, England, and the USA, and probably many other countries. Whilst VK5 had a field day in the early 1970s usually coinciding with the ZL VHF field day, it fell by the wayside due to lack of support in VK5. However, a national contest should stimulate plenty of activity. —VK5BW.

At my location, which is high and clear, (and I have used it many times before, there were virtually no signals. This was a disappointment to me, especially this year, as it is my 27th and last NFD. I'm just too old to go to all the trouble, but thankfully with Section (h) I'll operate from home for my remaining years. I'll even put up my portable aerial, hi! —VK2JM.

Our club has made the John Moyle our main field activity for quite some years and it has always been greatly enjoyed by the members. It provides an opportunity for the non-active members and members' families to meet and socialise apart from the more serious business of contesting. We have also regarded the field day as an opportunity for newer members to gain operating experience under the guidance of older operators. Heavy showers interrupted our preparations this year but enthusiasm was in no way dampened. —VK4BIF.

One of the solar panels used by VK2HZ.

Ian VK2KL, second-time Trophy Winner in the phone Section.

Marshall VK5FN, CW Trophy Winner in a rare pose — with microphone! (on two-metres).

I enjoyed it again, as usual, and really appreciate the 6-hour division, as otherwise I couldn't go into the contest. I think I enjoy setting up the station as much as I do operating. Erecting the dipoles, installing the gear, running power leads, etc, and finally testing to discover with pleasant surprise yet again that it all works. I found that having the ZL boys on made for much more fun and got quite a kick out of seeing how many times I could make contacts at the rate of four per minute or better. Please try and ensure that the two field days coincide. I know the ZL boys also appreciate it. —VK5QX.

First time for our club to enter the contest (City of Brisbane RC). Good activity by the ZLs on 40 and 80. There seemed to be a lack of portable stations on 160 (you can say that again — FCM). Only problem was with cattle on the property, one was caught on the extension lead from the generators, in the split of a hoof, but no barbeque. I wonder if stations that use rotators and/or computers in these portable locations are being a bit too serious. Hope to hear everyone again next year. —VK4NEF for VK4WIE.

Yes, the TARC does like the field days. We go out, not with the idea of making high scores, but to have a club get-together. It almost becomes a social occasion with many of the families coming along and camping at the site. However, the site is close enough to Townsville for day trippers to come out and join the melee, and to observe how it is all done. Most of these become full time in the next year. —VK4XZ for VK4WIT.

As with the last few years, activity from field day stations fell away dramatically after lunch. This is a pity as it suggests that there are few operators who are prepared to go out on Sunday for the 6-hour section. Traditionally Saturday has been for the very keen, the rest of us having to cut lawns, etc and hence Sunday has been preferred by the 6-hour ops. I can understand that those who start on Saturday have used up their 24-hours long before Sunday afternoon. Still we need more activity. What about all the owners of FT7s, FT101s, TS120s and so on? All they need is a 40 metre dipole, two lengths of cord and a large lead sinker and they can be operating within minutes of arriving at a shady spot. Or have we lost the ancient knowledge of how to throw a wire antenna up into a tree? Anyone with a mobile station, HF, VHF or UHF need only to drive to the nearest park and have a great Sunday afternoon. Or they could pack a picnic lunch and head further afield. What about it? Let's have more activity right through the contest next year. In closing I would like to thank all those who took the trouble to give me a contact. —VK3AFW.

Had a great weekend and looking forward to others. Log submitted to indicate our interest in the event (not to win). —VK3WN for Ballarat Amateur Radio Group.

## NATIONAL SPRINT 1988 RESULTS

On-air reports and comments included with logs (see comments below), all indicate the continuing popularity of the Sprints. The Third Annual CW Sprint was held on July 2, 1988 and the Phone Sprint, on July 9, 1988.

On behalf of the Adelaide Hills Amateur Radio Society and the VK5 Division of the WIA, congratulations are extended to the overall winners and the winners in the call area sections.

Overall Trophy Winner of the 1988 Phone Section is again Ian Buchanan VK2KL, who won the trophy last year. Congratulations Ian and thank you for your effort and kind remarks with the log. Will it be a "hat trick" in 1989?

Overall Trophy Winner of the CW Section is Marshall Emm VK5FN, in a tight competition, as he won by one point. Marshall's expertise with key is widely known through his many years writing "Pounding Brass" for AR.

The Sprints were originally a concept by Marshall while President of the AHARS. Now without the pressures of office and writing each month, he has won the event. All who have enjoyed his courtesy and encouragement on the key will join in congratulating his win.

This year I operated the Society's Bicentennial Call, VI88SA, on phone promoting the Sprint and the opportunity to thank participants for their support in the event. Special QSL cards have been forwarded for these contacts.

The Society will plan the 1989 Sprints to maximise the efforts of both VK and ZL stations. I understand there are already plans to run separate CW and Phone Sprints in VK4 and VK7 and we wish them success. Perhaps the development of the Sprints flatters an idea initiated by the AHARS.

Congratulations to all certificate winners (indicated by an asterisk) and thanks to all participating stations. In recognition of his meritorious performance and an incentive to Novices in future Sprints, a special certificate is awarded to VK3MBO, who received his licence in April — this was his first contest! Congratulations Steven — your score may inspire more Novices to 'have a go' next year.

**CW SECTION**

| | | | |
|---|---|---|---|
| VK2APK* | 23 | VK5FN* | 24 |
| VK2RJ | 19 | VK5ADX | 23 |
| VK2AIC | 17 | VK5AGX | 19 |
| | | VK5ADD | 16 |
| VK3CQ* | 20 | VK6AFW* | 16 |
| VK3JA* | 20 | VK6RF | 9 |
| VK4YB* | 20 | VK8AV* | 22 |
| VK4TT* | 20 | | |
| VK4OD | 19 | | |
| VK4SF | 19 | | |
| VK4NCM | 14 | ZL3KR* | 23 |

**PHONE SECTION**

| | | | |
|---|---|---|---|
| VK2KL* | 56 | VK5EN* | 46 |
| VK2RJ | 46 | VK5NJF | 43 |
| VK2LEE | 44 | VK5ADD | 41 |
| VK2CKW | 34 | VK5FN | 41 |
| VK2AIC | 30 | VK5KGP | 23 |
| VK2CJH | 24 | VK5RV | 19 |
| VK3YH* | 54 | VK6APK* | 31 |
| VK3CRA | 50 | VK6RF | 15 |
| VK3MBO* | 46 | VK6DA | 10 |
| VK3JA | 36 | | |
| VK3XF | 24 | VK7NRR* | 30 |
| VK4YB* | 53 | VK8AV* | 46 |
| VK4OD | 46 | | |

| | | | |
|---|---|---|---|
| VK4CYL | 45 | ZL3KR* | 48 |
| VK4CAG | 20 | | |
| VK4IS | 16 | | |
| Check Log | | | |
| VI88SA | 54 | | |

**SWL SECTION**

| | |
|---|---|
| ZL149* | 45 |
| Barry Thomson | |
| Phone Log | |

**OPERATORS' COMMENTS**

**VK2KL** It appears other Clubs are to run similar Sprints. You have really started something — a big plus for the Contest scene in Australia. Many thanks once again for an enjoyable Contest.

**VK2LEE** Most enjoyable. Already looking forward to the 1989 Sprint.

**VK3YH** Enjoyed my first Sprint very much. Congratulations.

**ZL3KR** Very enjoyable. Looking forward to the next Sprint.

**VK3CQ** One hour was enough — there were not enough CW entrants.

**VK4OD** Pleased to hear a Novice in there doing well.

**VK4SF** Thanks for these CW Sprints. It brings out some of the old CW operators to flex their wrists. Hope the numbers build up in future Sprints.

**VK4NCM** Enjoyed the challenge to compete with the full power operators.

**VK5ADX** The idea of this Contest is great. Pity there are not more CW operators taking part.

**VK5AGX** Enjoyed my first Sprint.

**VK2CKW** First time in a Sprint — be back again next time — really enjoyed it.

**VK3CRA** Best of the three Sprints so far. There were sufficient phone stations to make it a great hour.

—Contributed by John Hampel AX5SJ, National Sprints Contest Manager

# OLD TIMER RETURNS FROM A WORLD OF SILENCE

**"A chill went down my spine, I could feel the dits and dahs of Morse coming through my finger."**

AFTER ABOUT 10 years of deteriorating hearing, Denis Richardson of Kenilworth, Cape Town, went totally deaf.

The old timer, first licensed in 1923, was left in a world of silence and unable to enjoy his lifetime hobby of amateur radio.

"I couldn't — and still can't hear my own voice. This of course put paid to my hobby, " Denis said.

"Although I was able to carry on building electronic equipment, there was a big gap in my life being unable to hear from, or speak to, the many friends made during my 50-odd years on air.

"It was so frustrating," the 79-year old retired Mobil Oil assistant paymaster remembers.

For a decade Denis lamented about being off air. Then a fellow radio amateur suggested he try to copy Morse code by vibration.

"So I removed the cap from one of my earphones — and gently pushed my forefinger onto the diaphragm.

"A chill went down my spine, I could feel the dits and dahs of Morse coming through my finger," he said.

The thrill of being able to copy Morse through vibration was a very emotional event, and saw an old timer return to the world's best hobby.

Denis said: "I knew in that instant a whole new world had opened for me again. In no time at all I was able to read up to 20 words per minute through the earphone."

Using a small valve transmitter and his trusty 40 year old receiver, Denis Richardson, now ZS1B, is on air again.

—Adapted from a Mobil staff magazine by Jim Linton VK3PC. Acknowledgment to Mobil Oil Australia Ltd for its assistance and Snow Campbell VK3MR, for supplying the magazine clipping


# Coaxial Cable Specials

**Low Loss VHF/UHF Cables**

| Description | Trade & U.L. Type Number | AWG (Stranding) Dia. in In. Nom. D.C.R. | Insulation & Nominal Core O.D. inch | Insulation & Nominal Core O.D. mm | No. of Shields & Material Nom. D.C.R. | Nom. Imp. Ω | Nom. Vel. of Prop. | Nominal Capacitance pF/ft | Nominal Capacitance pF/m | Nominal Attenuation MHz | Nominal Attenuation db/100 ft | Nominal Attenuation db/100 m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **9913** 80C | 9½ (Solid) 108 bare copper 90Ω M 2 95Ω km | Semi-solid Poly-ethylene | 285 / 7.24 | Duobond II* + 88% tinned copper braid 1 8 Ω/M' 6.0 Ω km 100% shield coverage | 50 | 84% | 24 | 78 7 | 50<br>100<br>200<br>400<br>700<br>900<br>1000<br>4000 | 0 9<br>1.4<br>1 8<br>2 6<br>3 6<br>4 2<br>4 5<br>11 0 | 3 0<br>4 6<br>5.9<br>8.5<br>11.8<br>13 8<br>14 8<br>36 1 |
| | | | | | | Black PVC jacket. | | | | | | |

BELDEN 9913 low-loss VHF/UHF coaxial cable is designed to fill the gap between RG8 to RG213 coaxial cables and half-inch semi-rigid coaxial cable. Although it has the same outside diameter as RG8, it has substantially lower loss, therefore providing a low cost alternative to hard line coaxial cable. Price per metre from Acme Electronics is only $5.10.

BELDEN Broadcast Cable 8267 — RG213 to MIL-C-17D is only $5.24 per metre while BELDEN Commercial Version RG213 — YR22385 is $2.25 per metre. Prices do not include Sales Tax.

Also available from Dick Smith Electronics.

**Coaxial Cables**

| Description | Trade & U.L. Type Number | AWG (Stranding) Dia. in In. Nom. D.C.R. | Insulation & Nominal Core O.D. inch | Insulation & Nominal Core O.D. mm | No. of Shields & Material Nom. D.C.R. | Nom. Imp. Ω | Nom. Vel. of Prop. | Nominal Capacitance pF/ft | Nominal Capacitance pF/m | Nominal Attenuation MHz | Nominal Attenuation db/100 ft. | Nominal Attenuation db/100 m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **8267**† 1354 60C | 13 (7x21) .089 bare copper 1.87Ω/M' 6.1Ω/km | Poly-ethylene | .285 / 7.24 | Bare copper 1.2Ω/M' 3.9Ω/km 97% shield coverage | 50 | 63% | 30.8 | 101.0 | 50<br>100<br>200<br>400<br>700<br>900<br>1000<br>4000 | 1.6<br>2.2<br>3.2<br>4.7<br>6.9<br>8.0<br>8.9<br>21.5 | 5.2<br>7.2<br>10.5<br>15.4<br>22.6<br>26.3<br>29.2<br>70.5 |
| | | | | | | Black non-contaminating PVC jacket. | | | | | | |

**RG-213 U**
**MIL-C-17D**

ACME

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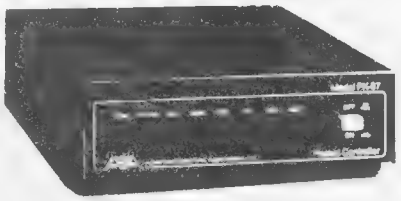

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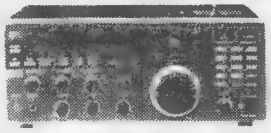

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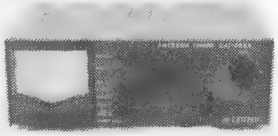

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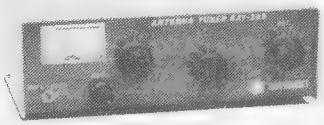

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- ✹ DIAWA MR 7504 motor in stock
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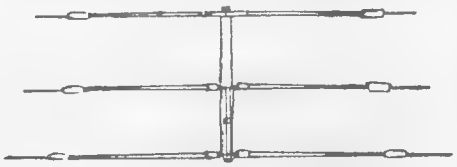
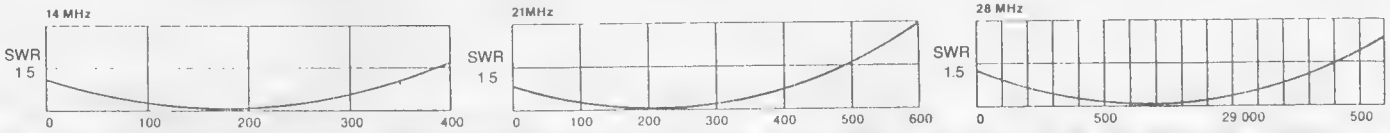


**SPECIFICATIONS:**

| | HB33DX | HB43DX |
|---|---|---|
| Frequency | 14/21/28 MHz | 14/21/28 |
| No of Elements | 3/3/3 | 4/4/4 |
| Gain (dBd) | 8.5/8.7/8.3 | 9.4/9.5/9.8 |
| F/B Ratio (dB) | 22/24/21.5 | 24/24.7/22 |
| VSWR | 1.5 or better | 1.5 or better |
| Power Rating | 2 kW | 2 kW |
| Impedance (ohm) | 50 | 50 |
| Element Length (metre) | 8.25m | 8.25m |
| Boom Length (metre) | 4.0m | 6.0m |
| Turning Radius (metre) | 4.54m | 5.1m |
| Wind Surface Area (m²) | 0.58m² | 0.74m² |
| Wind Load (EIA STD 80 MPH) | 56.7 kg | 72.7 kg |
| Weight (kg) | 15 kg | 19.2 kg |
| Price | $480 | $580 |

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# How's DX?

## 50 MHz DXPEDITIONS IN REGION III

### SINGAPORE

As far as anyone presently active in Society affairs or on the air could remember, it was a first. Certainly it seemed certain it was the first time since the 9V1 prefix had been introduced that it had happened. Maybe in the 9M4 days, but that was very unlikely. However, no one was really sure if it could have happened in the days of the VS1 prefix.

*What was this possibly historical event?*

It was 50 MHz operation from the island Republic of Singapore of course!

After some 18 months of discussion, correspondence and negotiation between Yoshi Hayashi JA1UT in Tokyo, Selva 9V1UV, President of SARTS in Singapore and the Telecommunication Authority of Singapore, (Telecoms), official permission was finally given for some limited six metre propagation tests to be carried out from Singapore using the specially allocated call sign, 9V1ES. Both the time/dates of the tests and the frequencies to be used were closely specified. Transmissions could only be made on 50.075 and 50.125 MHz between the hours of 0800 to 1700 hours local time, on days between June 3 and 12, 1988. The time was subsequently increased to past 1700 if conditions were good and signals could be heard. Also, the dates were extended to June 16.

**En route to Singapore Hayashi-san JA1UT (centre) took time out in Bangkok to renew his friendship with Mayuree HS1YL (right) and her family.**

**From left: Yathe 9V1JY, Yoshi JA1UT and Sato 9V1UU.**

**The view to the north from the operating position.**

**The six-element Yagi in position on the roof of the hotel — about 40 metres above ground.**

The equipment which was brought from Japan by JA1UT and his team consisted of:

— Yaesu model FT-625D modified to crystal control transmission on the permitted frequencies.
— 10 watts CW/SSB.
— six-element Yagi CL6 DX at 40 metres.

The venue was a hotel in the Tanglin area of Singapore.

The beam was mounted on the roof of the hotel with the kind permission and co-operation of the hotel management.

Yoshi JA1UT and his team which included his wife Setsuko JA1UPA, Hideo JA4HCK, and Aki JM1BDB, amongst others, considered the tests moderately successful as 157 stations were worked. All JA districts were worked with the exception of JA5, but unfortunately no countries other than Japan were heard. Contacts were mostly on CW with some on SSB.

### CHRISTMAS ISLAND

As an extension to his six metre propagation tests, Yoshi and Setsuko put six metres on air from VK4KCW/VK9X, from June 17 to 23, 1988. This station ran more power than 9V1ES but conditions were not so kind and only 105 stations, all JA, were worked.

Yoshi also activated VK4CEI/VK9X on the HF bands from Christmas Island and this station worked over 6000 stations on all HF bands. This included 19 stations on 1.9 MHz, 122 on 3.5/3.8 MHz and 123 on 29 MHz FM.

### CONCLUSION

Bearing in mind the opening up of six metres in various European countries within the past 12 months, (F, G, LA, PA0, 9H, amongst others) amateurs within Region III should take stock of the status of the six metre band within the various countries in the Region and work towards the opening up of a segment in this most interesting part of the frequency spectrum. Such work should and must be done by individual interested ama-

teurs encouraging their national societies to approach their administrations to open the band. The IARU and IARU Region III Association must then in turn co-ordinate and liaise with the member societies to hammer out a consistent plan for the Region.

Cycle 22 has started with a bang. With new countries now being available on six metres, it could prove to be an interesting time ahead for the dedicated six metre operators located in Region III.

—Contributed by David Rankin VK3QV/9V1RH

## SOME INTERESTING DX WORKED ON 40 METRES RECENTLY AT LEITCHVILLE, VICTORIA (ALL ON SSB)

HH7PV — Pat. Has beam, very strong signal. QSL direct
6Y5IC — Wenty, Jamaica. QSL direct.
8P6JB — Ron, Barbados. QSL direct or via bureau.
W0RLX/KH5 — Palmyra Island. QSL via W2GHK.
KG6SL — Bert, Saipan Island.
HK0EFU — Moses, San Andres Island.
CU3AA — John, Azores. QSL direct or via bureau.
KB5CGA/HR2 — Dean. QSL to APDO 421, San Pedro Sula, Honduras.
PT7WX — Frank, Brazil.
FM4EB — Dominique, Martinique. QSL via F6FNU.
ZK1XB — Criss, holidaying on South Cook. QSL to HB9DKQ.
ZF2ME/8 — Jo An, Cayman Island. QSL via WB3CQN.
FY5AN — Cris. QSL to BP746, Cayenne, French Guiana.
AX0NE — Graeme, Macquarie Island. QSL via VK9NS.
HC1NCMN — Carlos. (Call is a special licence grade).
D44BC — Julio, Republic of Cape Verde. QSL via Call Book address.
F6ARC — Olivier, very good signal.
5T5NU — Marc, Mauritania. QSL via F6FNU.
CT3DL — Luis, Madeira Island. QSL via Call Book address.
CT4EM — Rui, good signal from near Lisbon.
G0EVY — Dave from Birmingham.
ZK3RVC — Bing on Tokelau Island. QSL VK2BCH.
ZP5FGS — Frank. QSL to Box 1059, Asuncion, Paraguay.
T31JS — Jim. QSL VK9NS.
J6LB — Bernard. QSL to Box 1328, Castries, St Lucia, Windward Islands.
9Y4EB — Earl. QSL via 88 Call Book.
HI3JH — Julio, Dominican Republic. QSL via F6FNU.
VP2VM — Mac, British Virgin Islands. QSL via KW1K.
CE0ZAM — Juan. QSL to Juan Torres, Box 1, Juan Fernandez Island, Chile.
FP8CW — (Was worked but later advice suggests he may be "Slim".
HD8DZ — DXpedition to Galapagos Islands. QSL to HC2DZ.
KD0TE — Steve. Was worked and confirmed as the 50th state for WAS on 40 metres.
Also worked were 85 US and Canadian stations, and nine Cuban stations.
Plenty of DX also available on the net run by John KD0JL, 7.164 MHz from 0600 and 0730 UTC.

—Contributed by Steve Jenkinson VK3YH

## WORKED FROM WOODBINE, NSW DURING JULY

| | |
|---|---|
| EA3JE | SM7ACB |
| EA4BKE | K200CT* — QSL via K2VV. |
| EA4HD | IK6GPZ |
| G0EVY | NQ200O* — QSL via NQ2Q. |
| | KD6GH |

EJ1000 — QSL via EI7CC.
W200RR* — QSL via W2RR (SASE).
5T5NU — QSL via F6FNU (Baldeck, BP 14, F-91291, Arpajon Cedex, France).
W8LRZ
IT9PKO
ZL6REC** — QSLs not required as all contacts will be acknowledged.
TI2YO
NX200S* — QSL via Box 2942, Diringo, 81302, USA.

* — Special stations commemorating the 200th Birthday of the signing of the Constitution.
** — Special station commemorating the first town in the Southern Hemisphere to have commercial electricity — Reefton, South Island.
EJ1000 — Special station commemorating 1000 years of christianity.

## HEARD IN WOODBINE, NSW DURING JULY

LZ5A — QSL via LZ1KDP.
ZB2GR — QSL direct.
EA6VQ
XE1EEF
FT5ZB — Amsterdam Island. QSL via F6EHM.
VS67TK/DU1 — QSL via VS Bureau.
EK0AL — QSL via UW0MF.
Z21BA — Zimbabwe. QSL via N5FTR.

—Contributed by Bob Demkiw AX2ENU

ar

## PACIFIC DXPEDITION

From September 9, 1988, I will be travelling via the USA to the Pacific area activating some islands.

I am 21 years old, first licensed in July 1984 (Technical), and eventually upgrading to the highest licence in Sweden about December 1986. I have had about 4000 contacts since I have been licenced and have worked 187 DXCC countries. On 40 metres CW, my favourite band, I have worked 162 countries with 105 confirmed.

Following is an inventory of approximate dates, call signs and locations which will be visited:
September 14-23 — Hawaii, SM7PKK/KH6
September 25 - October 10 — Western Samoa, 5W1
October 11-24 — American Samoa, SM7PKK/KH8
October 25 - November 7 — Niue, ZK2
November 8-24 — Tonga, A3
November 24 - December 13 — Fiji, 3D2KK
March 25 - April 4 — South Cook, ZK1

Frequencies: SSB — 3.795, 7.095, 14.195, 21.195, 28.595 MHz. CW — 3.505, 7.005, 14.005, 21.005, 28.005 MHz.

QSL to Mats Persson SM7PKK, Betesv 22, S-240 10 Dalby, Sweden.

—Contributed by Mats Persson SM7PKK

ar

## CONTROVERSIAL 4J1FS

It has been worked by many from all Continents and is the hottest news on the DX front since Peter 1 Island and the Western Sahara came on the scene without a fanfare, typical of Martii Laine OH2BH's operations.

On November 17, in 1970, this area was given the 'go ahead' by the responsible DXCC Desk person at the ARRL Headquarters. Martii, still has his original, but the original's copy has probably been through the shredder by now.

It is now left to John Parrott W4FRU, Chairman of the ARRL DXCC Advisory Committee to give it the nod as okay or reject it. Not an envious task which will probably test the new criteria of the ARRL DXCC Award.

It is interesting to note that 4J1FS (Finland/Soviet) with three Finnish and three Russian operators was using a Russian designated prefix. A little strange, nevertheless the prefix of 4J and 4K is used outside territorial USSR, such as the Arctic or Antarctic areas and the Finnish OF-OJ call sign block is reserved only for use within the Republic of Finland.

To John W4FRU and his 16 strong contingency, your deliberations will be accepted I am sure by the true amateurs who are DX hunters, though there will be quite a few opinions expressed over many air-hours in the ensuing weeks.

—Contributed by Ken McLachlan VK3AH which was compiled from various sources

ar

# QSP

## GLASNOST FREES UP U-LAND

Considerable reforms have occurred within the Soviet Union under the government's Glasnost (openness) policy.

The policy has flowed through to the Amateur Radio Service for the benefit of the half a million Soviet radio amateurs.

The first ever national conference of radio amateurs has been held in Moscow where significant relaxations of operating conditions were announced.

Russians can now contact Israeli radio amateurs. These contacts had been banned since the six-day war between the Soviet allay, Egypt, and Israel, in 1967.

This move has been welcomed by Israeli radio amateurs, who have regained access to a host of Russian countries on the DXCC list.

All Soviet radio amateurs were now permitted to contact stations in the capitalist countries — a privilege previously only available to a relative few.

During DX contacts they are also now permitted to give their private address, and could print this information on QSL cards. This makes direct QSLing possible, as well as the long established QSL bureau route of Box 88, Moscow.

Put Glasnost to the test next time you work U-land on the DX bands.

ar

## SCHOLARSHIPS

The Dayton Amateur Radio Association (DARA) has just awarded its annual four scholarships for licensed amateurs to the value of US$1000 each, for High School graduates. Each scholarship entitles the student, who may hold any class of an amateur licence, to continue another years study of their choice.

DARA has run this successful scheme for quite a period. Is it food for thought to some VK Club Committees?

Fred Hammond VE3HC, was named 1988 Special Achievement Award Winner at the recent 28th Annual Dayton Convention. Fred was recognised for his participation in assisting amateurs in mainland China to again use the air-waves, DX stations in the Caribbean, outstanding efforts to preserve the early days of radio, particularly those which are pertinent to our hobby, at his museum in Guelph, Ontario. Congratulations are extended from all VKs Fred, on your achievements and assistance to the hobby we are privileged to enjoy.

## THE BANDS ARE NOT QUIET!

The Canadian Radio Relay League (CRRL) Outgoing QSL Bureau Manager, first quarterly report for 1988, noted that 283 amateurs and affiliated organisations forwarded in excess of 45,000 cards to Bureaus in Canada, and other countries around the world. The CRRL provides this service free to members.

—Condensed from *CRRL News* by Ken McLachlan VK3AH

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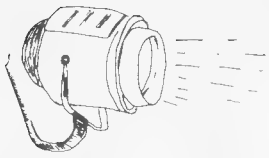
**DEADLINE FOR DECEMBER IS OCTOBER 15, 1988**



# Spotlight on SWLing

**Robin Harwood VK7RH**
*52 Connaught Crescent, West Launceston, Tas. 7250*

I recently obtained my copy of the Seventh Edition of *Ferrell's Confidential Frequency List* through the Australian Radio DX Club. For many years Perry Ferrell compiled this extensive frequency list of Utility HF Stations, based cn monitoring. Sadly, he was killed in an auto accident shortly before the Sixth Edition of the List was due to be published. Several American utility enthusiasts stepped into the breach to ensure that it would be finished. Now the Seventh Edition has been published by Gilfer Shortwave, Park Ridge, NJ, USA and is priced at US$19.95.

The Seventh Edition of the CFL has been updated as far as it can be in the fast changing utility activity. Yet I still have to refer to the previous edition to check such information as power output which is not included in the latest edition. It has been compiled by Geoff Halligey, a British utility enthusiast with the co-operation of several enthusiasts throughout the world.

The CFL was able to identify one of those numbers of stations that I have often come across, especially on the 30 metre amateur band. Around 10.130 MHz, AM, I have heard a female voice repeatedly saying; "Charlie India Oscar 2". The location is reportedly within Israel and is the Israeli Secret Service — "Mossad". The same signal has also been heard around 13 MHz from time to time. The majority of these stations using Phonetic Alphabet Call Signs are believed to be the Mossad. The other number stations that are easily heard on a variety of frequencies do not use any identification but get straight into sending groups of five numbers. The language is usually Spanish and CFL claims that these are located within Cuba. Personally, I believe that some are sending coded messages to the Nicaraguan "Contras". Therefore, these could be within the USA or Central America.

Other number signals in German are in Eastern Europe, as are the Esperanto numbers. Some magazine editors in North America claim there is a correlation between the European and Cuban stations. About five years ago, I did hear number stations in Chinese within the amateur allocation on 14 MHz. It remains unclear whether the station/s were in Taiwan, the USSR or elsewhere, for these haven't been heard for some time.

Some may ask what about the CIA or KGB and can you hear them on HF?

I am certain that some activity does emanate from these intelligence organisations. As can be expected, their operations are highly sophisticated and technically superior to the smaller outfits. In one recent article about espionage, it was revealed that agents send bursts of data to satellites in low orbit. This overcomes propagational or man-made disturbances on HF and would be more secure.

There are plenty of stations, particularly on CW, sending out five figure or letter groups. Some of these would be engaged in intelligence activity, but many would be sending out the International Meteorological Code (Meteo) which are groups of five numbers. The latter do keep utilising the same channel and regular hours, while intelligence operations generally shift about both in frequency and time order. Incidentally, could somebody please send me a copy of the METEO format, as there are plenty of signals, both on RTTY and CW using this. Several intruders within our exclusive allocations employ it. I can be contacted QTHR.

Recently it was announced that the ABC was going to alter arrangements for Parliamentary Broadcasts by using their standby transmitters to carry Parliament. The exact frequencies haven't been announced yet. I also believe that the service will be only on when Parliament is in session. A similar arrangement does exist in New Zealand. Also, it has been proposed that the Radio for the Print Handicapped stations will come into band on frequencies vacated by existing AM stations in Metropolitan areas who wish to convert to FM.

The Olympics are in full swing now. Several international stations propose to broadcast live from Seoul, South Korea, including Radio Australia, and the BBC. The latter has set aside channels exclusively for "Sportsworld" coverage of the Olympics. The other major sporting event that happens in October is the Australian Cricket Tour of Pakistan. Commentary of the Test Matches and Internationals could be provided on 17.660 MHz.

The first Tuesday in November is traditionally Melbourne Cup Day, but every four years a very different race is held in the US. It is, of course, the Presidential Election and there will be extensive coverage via the Voice of America of the election results on November 2, from 0100 UTC. You might have noticed that another American shortwave institution ceased to operate in September. The Armed Forces Radio and Television Service (AFRTS) in Los Angeles ceased to use VOA from Croughton, on SSB.

Try 13.651.5 MHz or 9.242 MHz, but tune around as they do vary from day to day. These feeders are for maritime stations as well as being a back-up in case the satellite feed drops out.

Well, that is all for October. Until next time, the very best of good listening and 73.
Robin VK7RH.

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# Intruder Watch

**Bill Martin VK2COP**
*FEDERAL INTRUDER WATCH CO-ORDINATOR*
*33 Somerville Road, Hornsby Heights, NSW. 2077*

Well, I finally did it! Missed the deadline for September AR — hence no column for that month. Sorry about that — I was probably preoccupied with the rig being in for repair and wondering how much it was all going to cost! I am writing this in early August, but the weather keeps trying to tell me it is Spring already. By the time you read this it will be well and truly Spring, and a wonderful time of the year.

Now, down to business. Statistics for June are as follows:
238 AM intruders
205 CW intruders
246 RTTY intruders
38 intruders using other modes, and
30 intruders identified themselves.

The figure for AM mode is misleading as most of these were Asian CB-type stations on the amateur 28 MHz band, and were reported in groups. The actual figure is much higher as individual observers were reporting these in groups of dozens and more from 28.000 Mhz up, It has reached the stage where there are too many to be listed individually. Observers kindly supplying reports for June were:
VK2s — EYI, MEF
VK3s — AMD, ATK, CMW, EMJ, PJB, XB
VK4s — ADY, AKX, BG, BHJ, BTW, BXC, IS, KHZ, WLX, YD
VK5s — GZ, TL, ZKS
VK6s — RO
VK8s — HA, JF, PT.

Thank you one and all.

The Deutscher Amateur Radio Club (DARC) of West Germany, has initiated a letter concerning illegal CB operations which are causing harmful interference to West German Amateur Operators. The letter has been sent to Communications Administrations in Rome, Buenos Aires, Paris, Madrid, Brazil and Beirut. Seems there are people all over the world who cannot do the right thing.

The Field Services Department of the ARRL has also sent the following information for the attention of the FCC — Non-amateur RTTY on 14.024 MHz; same on 14.179 MHz; a shortwave broadcast station on 21.404.5 MHz and many CB-type operations on 28 MHz. Let us hope the FCC can get some results.

Statistics just to hand for July 1988:
330 (blocks of) AM intruders . . . mostly Asian non-amateur on 28 MHz
155 CW intruders
269 RTTY intruders
72 intruders using other modes, and
33 intruders identified themselves.

Reports were supplied by:
VK3s — ATK
VK4s — ADY, AKX, BG, BHJ, BTW, BXC, IS, KHZ, OD, YD
VK5s — TL
VK6s — RO

The Australian fixed station "AXM" 32/34/35/37 has been heard in New Zealand in July, on 14.002 MHz, using RTTY at 50 Bauds and 850 Hz shift. A note has been sent to DOTC. We certainly cannot complain about intruders if our own backyard is not neat, can we? So there you are for now. See you next month unless I get all excited and miss the deadline again! 73 to all.

ar

# Awards

**Ken Hall VK5AKH**
*FEDERAL AWARDS MANAGER*
*St George's Rectory, Alberton, SA. 5014*

## QSO PARTY TO HELP QUALIFY FOR LION CITY AWARD

DATE — October 15, 1988.
TIME — 0000 to 2400 UTC.

The Lion City Award is available to amateurs and SWLs who have confirmed contacts with five 9V amateur radio stations (10 for amateurs in CQ Zone 28). Applicants must submit a certified log extract (GCR) to the Awards Manager, SARTS, Maxwell Road, PO Box 2728, Singapore, 9047 with five IRCs.

QSO PARTY RULES — 9V stations will operate all bands, 80 to 10 metres (no WARC for award), CW and SSB (listen for SSTV, RTTY and packet as well). DX stations send RS/T and CQ Zone; Singapore stations send RS/T and serial number.

AWARD APPLICATIONS — For stations working five 9V stations during the QSO party, contacts need not be confirmed. Submit log extract with complete exchanges to Awards Manager, with reduced fee of three IRCs. QSO Party contacts may be combined with confirmed QSOs to qualify for the award; minimum of three QSO party contacts qualifies for the reduced fee. There is no penalty for invalid submissions, but all applications will be checked against 9V station logs. Band and mode endorsements are available.

—Contributed by K C Selvadurai 9V1UV, President, Singapore Amateur Radio Transmitting Society

## PARRAMATTA HISTORICAL SITE AWARD

PURPOSE — This award is introduced as a Parramatta Bicentenary Award and is open to all who wish to participate. The award is to celebrate 200 years of European settlement, in the Parramatta area.

HISTORY — The first fleet arrived in Australia on January 26, 1788. They landed at Farm (Sydney) Cove, and set up the colony on that site. The need to start farming was most urgent. The Parramatta area was selected and the first settlers arrived on November 2, 1788. Parramatta is the only other area on the Australian mainland that celebrates its bicentenary in the same year as Australia. Parramatta has many historical sites and buildings and our station will operate from 11 of these historical sites.

DURATION — Station operation will be from 0000 UTC on October 31 to 0000 UTC on December 4, 1988. The days in between these times of operation will be started at 2100 and finish at 0900 UTC (this will give 12 hours operation each day during daylight hours local time). There will be 11 historical sites, and we will be at each site for three days. The last few days will be a catch-up time for those who missed a contact at one site.

OPERATION — The bands in use will be two, 15, 20, 40 and 80 metres on CW and phone. The operation shall conform as per amateur licence regulations. To be eligible to receive the award logs must be kept. A copy of the log entries, in sequence, according to UTC times, dates and frequencies will be accepted. An attached declaration must be completed and submitted with payment as outlined under heading of fees. All entries must be postmarked to arrive to our committee no later than June 30, 1989. Late entries will not be accepted.

FEES — The Award Fees include postage and packaging to ensure minimal damage during transit.
Australia and Territories — $2.50
Overseas Surface Mail — $3.50
Overseas Airmail — $5.00

PAYMENT — Payment by mint Australian postage stamps, money order, postal note, certified cheque, International Reply Coupons (with 1988 or 1989 date stamp).

Payments to Chairman Parramatta Bicentennial AR Group, PO Box 883, Parramatta, NSW. 2150.

The award will be issued to stations that contact the station at any one site.

SWLs may participate in the Parramatta Bicentenary Historical Site Award by logging the stations in contact with our station at any one of the 11 historical sites. The submitted logs must follow the same procedures as listed for amateur stations that are participating. Fees and payment are the same as those previously described.

QSL — A special Parramatta Bicentenary QSL card has been produced for the memorable occasion. It will be issued on receipt of your card. Cards will be forwarded through the bureau or may be sent by post providing payment of one Australian Dollar is received.

CALL SIGN — The station will be using the call VI88NSW during the whole of the operation.

BAND AND TIME SLOTS (EACH DAY)

| | |
|---|---|
| 2100 to 2300 | 14.088 MHz CW |
| | 14.188 MHz USB |
| 2300 to 0100 | 21.088 MHz CW |
| | 21.188 MHz USB |
| 0100 to 0300 | 3.500 MHz CW |
| | 3.500 MHz LSB |
| 0300 to 0500 | 7.008 MHz CW |
| | 7.088 MHz LSB |
| 0500 to 0700 | 14.088 MHz CW |
| | 14.188 MHz USB |
| 0700 to 0900 | 14.088 MHz CW |
| | 14.188 MHz USB |
| | 146.000 MHz FM |
| | 144.120 MHz USB |

HISTORICAL SITES (WHERE AND WHEN) — The station will be at the 11 Historical Sites as listed:

| | |
|---|---|
| **1. Parramatta City** | |
| October 31 | 0000-0900 UTC |
| October 31 | 2100-0900 UTC |
| November 1,2 | 2100-0900 UTC |
| **2. Old Post Office** | |
| November 2,3,4 | 2100-0900 UTC |
| **3. Lancer Barracks** | |
| November 5,6,7 | 2100-0900 UTC |
| **4. Linden House** | |
| November 8,9,10 | 2100-0900 UTC |
| **5. Old Government House** | |
| November 11,12,13 | 2100-0900 UTC |
| **6. Governors Bath House** | |
| November 14,15,16 | 2100-0900 UTC |
| **7. Australia's First Observatory** | |
| November 17,18,19 | 2100-0900 UTC |
| **8. Parramatta Park (Tudor) Gate House** | |
| November 20,21,22 | 2100-0900 UTC |
| **9. Elizabeth Farm Cottage** | |
| November 23,24,25 | 2100-0900 UTC |
| **10. Hambledon Cottage** | |
| November 26,27,28 | 2100-0900 UTC |
| **11. Experimental Farm** | |
| November 29,30 | 2100-0900 UTC |
| December 1 | 2100-0900 UTC |
| **12. Catch up day** | |
| December 2, 3, 4 | 2100-0900 UTC |

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# Australian Ladies Amateur Radio Association

**Joy Collis VK2EBX**
*PUBLICITY OFFICER, ALARA*
*Box 22, Yeoval, NSW. 2868*

I have discovered that one of the greatest assets a person can have is family and friends. Having a loving, caring family is wonderful. Having true friends makes one rich in a way mere money or possessions never can.

Why all the philosophising? Lying in a hospital bed, post-op with intravenous drip, tubes here, tubes there, and generally feeling very miserable, I was quite overwhelmed by the flood of cards, flowers, letters, visitors and good wishes coming my way, More was to come — on arriving home I found a new computer plus disc-drive, printer, etc awaiting me, and my OM had painted and carpeted the dining-room for a "welcome home".

To everyone I can only say I am truly grateful, and count myself to be a very fortunate person.

Most of the following material was supplied by Jenny VK5ANW and Bron VK3DYF, without whose help we may not have had a column this month. My sincere thanks to both of them.

## PRESENTATION AT WALFORD

On Tuesday, June 14, Marilyn VK3DMS, our President, presented a package of books on amateur radio to Walford Anglican Girls' School, Unley. The books were a gift from ALARA to thank Walford for the use of some of their facilities for our ALARA-meet last September. The books were accepted on behalf of the school, by Karen Tay, who is a member of an Extension Activity Group learning Morse code. The presentation was made at the middle-school morning assembly led by Mrs Margaret Alexander, the Deputy Principal. and participants included Meg VK5AOV and Denise VK5YL, both of whom are on the staff, and Jenny VK5ANW, who was the official (?) photographer.

If the girls at Walford don't know a great deal about amateur radio by now, it won;t be because they haven't had the opportunity! As well as the presentation of the books, preceded by a brief explanation from Meg, and the Morse classes which Meg is taking, the school has had a radio station running for three weeks as a special Bicentennial project. Not only were the girls encouraged to visit whenever they had a spare moment, but whole classes actually sat in and listened or talked to local or DX stations. The station was manned (personed?) by volunteer operators, many of whom were ALARA members. We hope that we may be sowing the seeds for some future ALARA members.

**ALARA President, Marilyn VK3DMS, makes a presentation of amateur radio books to Walford Anglican Girls School, Adelaide, to thank them for allowing ALARA to use their facilities at ALARA-meet (September 1987). The books were accepted by Karen Tay, a Year 8 student.**

## BIRTHDAY ACTIVITIES

The ALARA Birthday Activity Day was held on July 23, and other activities held in conjunction were:

**The VK5 ALARA Birthday Luncheon was held on July 24, 1988 at St Pauls, Pultney Street. Enjoying the occasion were: Back row from left: Denise VK5YL, Janet VK5NE, Maria VK5BT, Myrna VK5YW, Marg Bradbury, and Val Waite. Front: Jill Wardrop, Joy VK5YJ, Meg VK5AOV, Christine VK5KTY and Sue VK5AYL.**

**Marilyn VK3DMS, Meg VK5AOV, Karen Tay and Jenny VK5ANW, at Walford School.**

VK5 BIRTHDAY LUNCHEON

On Sunday July 24, 12 South Australian YLs and aspiring YLs, met for lunch at St Pauls Restaurant in Pultney Street, Adelaide. (See photograph).

Needless to say a good time (and probably increased waist-lines) was had by all.

VK3 LUNCHEON

The VK3 Luncheon for the 13th Birthday was held at Raedie's on July 31, 1988, with 12 ALARA members present — Austine VK3YL, Mavis AX3KS, Phyl VK3PYL, Gwen VK3DYL, Jessie VK3VAN (and OM Gordon VK3BGB), Bonnie VK3PBL (who obligingly provided transport for a couple of hitch-hikers) Raedie and her OM Ray VK3BHL, Margaret VK3CWA (whose OM David VK3BDJ called in and stayed a while), Valda VK3DVT, and her sister Pat, Marlene VK3FML (OM Jim VK3FFF), Pat VK3PRV (who had as escort two harmonics, Tiffany and the rather young Susie), and Bron VK3DYF. Apologies were received from Marjorie VK3HQ, Liz VK3JQ and Mona VK3BRE.

It was a most enjoyable day, presents were exchanged, and there was plenty of talk. See! We don't need microphones to start the conversation!

## NEW STATE REPRESENTATIVE IN VK4

It was with regret that we accepted the resignation of Josie VK4VG, as VK4 State Representative, but were pleased that her vacancy was able to be filled, almost immediately, by Cathy Cooper VK4CEK. Our thanks Cathy for volunteering so promptly.

Incidentally, the following are the other State Representatives and if you know of a lady who is

interested in becoming an amateur radio operator, or perhaps already is one, but isn't a member of ALARA, please let the relevant State Representative know:

| | |
|---|---|
| VK1 and 2 | Joy VK2EBX |
| VK3 | Bron VK3DYF |
| VK5 and VK8 | Maria VK5BMT |
| VK6 | Bev VK6DE |
| VK7 | Helene VK7HD |

### ALARA PROMOTES THE WIA

The Federal Executive of the WIA probably didn't expect the enthusiasm which was generated when ALARA was granted permission to use VI88WIA for a month in July.

In the first two days one operator had logged over 500 contacts on CW, and at the last report, logs with a combined total of over 2500 contacts had been received, and there were still a few logs to come. Perhaps it is just as well that we decided to QSL only those contacts who requested it. Even so, Maria VK5BMT, must be getting writers' cramp by now!

Out thanks to the WIA for all their help and encouragement, and if you missed out on a contact this time around, we will be operating the call sign again from Monday, October 31, to Sunday, November 13.

### VI88WIA — ONE YL'S EXPERIENCE

ALARA had the special Bicentennial call sign for the month of July, and I was rostered on for the second weekend in July.

I made my plans, transceiver alright, antenna and chair okay. Next matter, organise coffee — at suitable intervals, meals when due. Scones with jam and cream (dare we mention such things in this column? Joy) seemed a bit likely to get into the microphone, but hot buttered scones were an acceptable alternative.

Put VI88WIA on, as being operated on behalf of ALARA, had a fair number of contacts, and appreciated the many OMs who called; especially the one who "dusted off his mic" being a "key" user normally.

So all in all an enjoyable weekend of operating.

The coffee, the meals, the hot buttered scones — just a lovely dream!

### VI88WIA — AN ENJOYABLE EXPERIENCE

I had the use of the VI88WIA call sign for two evenings in July (after work). I am sorry to say the long-suffering OM at this QTH had to make do with some very scrappy meals for the evenings concerned, but he seems to have survived!

Found it a very interesting and enjoyable experience, although I must admit to getting side-tracked on more than one occasion with a bit of rag chewing instead of getting on with the business in hand, and "met" some fascinating people as a result. These included a delightful gentleman in Townsville, 84 years young, who had been licensed for 52 years — and another gentleman from the same city operating a home-brew transceiver with one watt output, and putting out a 5/6 signal on 80 metres.

My score was around 70-plus for two evenings operation, hopefully adding a little to the overall total.

My thanks to Maria VK5BMT, for giving me an opportunity to use VI88WIA for ALARA, and also the WIA, who made it all possible in the first place. (Joy).

### VK3BSP

The following item, while it is not strictly YL business, may give some of us a chance to encourage our young people:

Southern Peninsula Amateur Radio Club on the Mornington Peninsula, call sign VK3BSP, in conjunction with local primary schools, is running a program where a small number of students come to the clubrooms each Wednesday afternoon to learn a little about amateur radio and have a chance to speak on air. The program will run until the end of the year (except school holidays) to give all the Sixth Grade pupils a chance to participate.

If you are available between 0330 and 0515 UTC on a Wednesday afternoon, try 3.570 MHz to see if you can hear them. Time is taken during that period to explain amateur radio so transmission is not continuous.

An item in June AR refers to a book written by Ron VK5VH, which gives some idea of amateur radio to 10 and 12 year olds. It is called *The Magic of Mr Ree.*

### JOTA

While on the subject of young people, let us not forget Jamboree on the Air, held every year on the third weekend in October. This is a real opportunity to demonstrate what amateur radio is all about, and give our Scouts and Guides a chance to talk to their counterparts in other places.

### ALARA CONTEST

Not too soon to start thinking about our contest, which will be held on Saturday, November 12, 1988 from 0001 to 2359 UTC.

To celebrate the Bicentennial, special certificates will be issued this year to:

VK stations obtaining 200 points and contact with 10 ALARA members.

DX stations obtaining 88 points and contact with five ALARA members.

### CORRECTION TO MEMBERSHIP LIST (July AR)

Jan VK6PJL (not VK6PYL).

Until next month, 73/33, Joy.

ar


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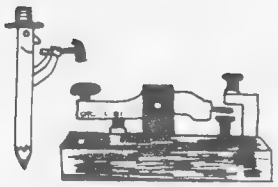


# Pounding Brass

**Gilbert Griffith VK3CQ**
*7 Church Street, Bright. Vic. 3741*

"A speed trial between the telegraph and the telephone from New York to Boston was lately undertaken at the *Sun* newspaper office in this city. The contest lasted for 10 minutes; 330 words were delivered to Boston, ready for the printer, by telegraph, and 346 words by telephone. But many of the telephone words were incorrectly received. And so the telegraph was the winner."

—From *Scientific American* June 1988 "100 Years Ago"

Also received this month from Steve VK2CSV, a copy of an article in *The Short Wave Magazine* September 1985, by Justin Cooper. The article describes the testing of the various modes of transmission as to their usefulness under both clear channel and noisy conditions. The results in brief are, that both AM and FM require clear channel conditions and both CW and RTTY can be copied below the noise level when there is no interference.

"Under QRM conditions it was SSB telephony all the way as far as any form of phone went, but the CW wins hands down. AMTOR is a runner-up, then SSB and RTTY with AM and FM not really in the hunt. Finally 'mechanical CW' out of a decoder. This is obviously dependent on the quality of the decoder, but none of them cope well with hand-sent Morse (which doesn't say much for the 'fists' of the sending operators even though they were easily copied by ear!) and none of them likes the QRM; also they seem to be difficult to tune. Results, on a par with AM but a little better. Easier to learn Morse!"

I have had a number of inquiries regarding the CW Operators QRP Club and the Club Communicator transmitter. I have a copy of the 52 page manual which is the best I have seen for *any* kit so far. I hope those of you who wrote to me about joining and ordering the kit are well on the way to some on-air tests by now. I hope you can also have a try at a home-brew receiver as well. You will find some extra pleasure when you complete your first contact using your *own* receiver as well as transmitter. Even though the receiver seems harder to build, I think you will be surprised if you compare it with a commercial rig. Under most 80 metre band conditions my little black box seems to out-perform the IC-751A, and that is with no filtering or AGC. Good audio filtering is obtained by dropping the two-inch monitor speaker into an empty cup, which resonates nicely on about 700 Hz!

## OVERSEAS NEWS

Some overseas news from an article in *Morsum Magnificat* by Ron Wilson G4NZU, called "Morse Testing and Training in the UK".

"The UK has two classes of amateur licence, the Class A which requires a theory examination plus a Morse test at 12 words a minute; and the Class B which requires the same theory examination, but no Morse.

"The Class B licence restricts operation to frequencies of 50 MHz and above. Until 1985, the use of CW was prohibited for B licensees. The Class B can be converted to Class A by passing the Morse test, when all frequencies allocated to UK amateurs become available for use.

"In 1985, the restriction on the use of CW by B licence holders was relaxed as an aid to "self-training" in Morse code. At this time the administrative arrangements for the Morse test were also altered.

"The issue of licences and Morse testing is subject to the International Radio Regulations and is therefore a government responsibility. The Post Office, and later British Telecom, carried out this task as government bodies. However, on the privatisation of British Telecom, the Department of Trade and Industry took over the responsibility for these matters. The contract for Morse testing was put out to tender and the Radio Society of Great Britain, offering a superior service at a lower cost, was awarded the contract.

"Up to this time, testing had been carried out by the GPO/BT mainly at their coastal radio stations, of which there are about 20 scattered around the coast of the UK. This system was thus completely independent of the amateur movement, and most candidates were involved in considerable travelling to a testing station.

"The RSGB scheme, by contrast, provides Morse testing centres in each county of the UK, though in the more sparsely populated regions there is, in effect, a regional centre. These centres are run by teams of examiners most of whom are amateurs, although some are former BT examiners.

"The scheme is run by the Chief Examiner, Neville Ianson G3GDO, and a Deputy Chief Examiner, originally Rik Edmondson G3YEC, who between them have travelled the length and breadth of the UK testing and appointing examiners of whom there are over 230. They have also been heavily involved in setting up the administrative side of the scheme. Rik has now had to withdraw from his post and has been replaced by Phil Bell, a former professional.

"Potential examiners are required to pass a test at 20 words per minute, and to have relevant experience in testing situations, and a suitable personality.

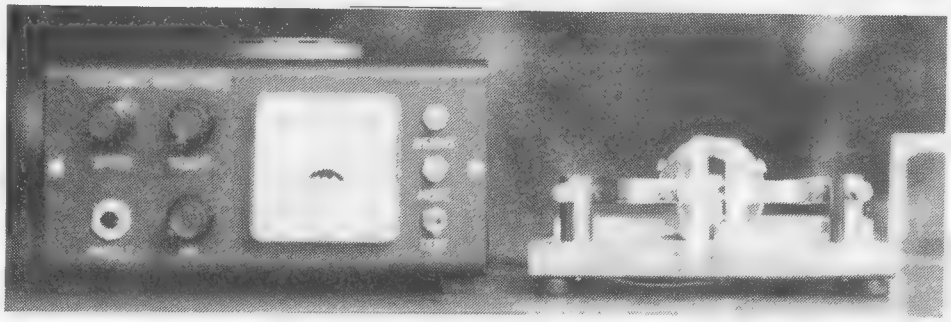
"Each county has a number of examiners, one of whom is designated Senior Examiner. It is his responsibility to arrange suitable accommodation and dates for the test sessions. He must ensure that each session runs as smoothly as possible, both the test itself and the reception and handling of the candidates — who are always in a highly nervous state!

"Why this nervous state is so common is interesting, as the precise details of the test are well known by the candidates in advance. They know, or should know, exactly what they have to do. Perhaps this is just another of those fascinating psychological aspects of Morse learning!

"In the receiving test candidates are allowed four errors in plain language, and two in the numbers. In transmitting they are allowed no uncorrected errors, but are allowed four and two corrections in the plain language and numbers respectively.

"Candidates are tested in groups of three for receiving, but the transmit part is taken individu-

**The Home-brew 80-metre Transmitter and Receiver.**



**The VK3CQ 8044ABM-based Keyer and Gilcher Paddle.**

*"Henry is Spending the day in bed with a code."*

ally. Each session is taken by two examiners. One, the "session examiner" is responsible for the conduct of the test itself, and the other acts as a "witness examiner". His purpose is to act as a check on the session examiner, and to assist with the paper work.

"It must be appreciated that the examiners are also subject to nerves! The concentration required is considerable, as they have to ensure that the speed is correct; that they are sending the text correctly; that they are sending the correct characters, and that those characters are well formed and spaced. (How many of us *really* listen to our own CW?).

"It must be remembered that the examiners are experienced and practised CW operators who are used to rather faster speeds than 12 words per minute! As the test is required to be given and taken on a straight key, we have another reason for concentration. It is not unusual for examiners to have fairly regular sessions on a straight key, just to keep in practise!

"In any given county, tests are held at two-monthly intervals, with surrounding counties holding their tests in the months between. Thus for all candidates there are a number of test centres available within relatively easy travelling distance which, between them, provide a testing facility every month. . .

"For many years the UK has been covered by a network of stations transmitting "slow Morse" sessions as an aid to learners. This is very satisfactory for developing receiving skills. The formation of transmitting skills has, however, until the licence variation, been a matter of solitary practice, or finding some Class A licensee willing to help. The difficulties are many, perhaps the most serious being the reluctance of the helper to give a really honest assessment of the Morse received from the learner.

"This is a difficult situation, depending on the CW experience of the helper, his knowledge of the test itself, and the personalities of both helper and learner. In recent years, with the advent of Morse training programs on home computers, there has arisen the possibility of testing your sending by the computer's ability to read your CW. (Is there a better test of hand-sent Morse!).

"The variation in the B Licence allows the use of CW on-air for practice purposes. With the old testing system under British Telecom, it has always maintained that the main cause of failure was in the receiving part of the test. With the new system, it is found that sending causes the majority of failures. This is a surprising change when the availability of the licence variation is taken into account. Indeed, one really has to ask whether the majority of candidates are taking proper advantage of this facility?

"Since it became available there has been a considerable increase in the number of Morse practice nets on the two-metre band, frequently run by a helpful Class A licensee. Unfortunately, it would appear that some of them are preparing their students for a test other than the official one! Some of the advice given is such as to guarantee failure! For example, that the examiners would prefer good Morse at 10 words per minute rather than rough Morse at 12 words per minute. Of course we would like good Morse. It makes things easier for us. But the test *is* at 12 words per minute, not 10!

"Most of these nets consist of sending messages of text from a book. This is fine in the early stages, but I am of the opinion that students should move to a normal type of conversational QSO as rapidly as possible. The good test candidate is no problem, indeed it could almost be said that they are "naturals". For the weaker ones, it is evident that they are still frightened off the key.

"This could be due to insufficient transmitting practice. However, I feel there is more to it than this. To them, the key is still an unnatural thing stuck on the end of their fingers, demanding the utmost concentration, frequently pounded with great vigour, with huge gaps and incredible tensions. part from needing advise on the use of a key, if they could be involved in "real" conversations, where they are having to think about what to send, then I believe the key would rapidly become a natural part of the process.

"They should be so busy thinking what to send that they cannot afford the luxury of worrying about the key. This type of practice, using a key with a personal minimum gap and tension would, I am sure, not only improve their sending, but also their enjoyment of our glorious mode.

"The new RSGB testing scheme has now settled down, both administratively and practically. It is providing the service the aspiring Class A amateur wants at reasonable cost, at reasonable intervals, and near his home. The scheme has not been set up and left to run in a vacuum however. It is subject to inspection, both by the RSGB and the DTI, who are making spot checks on the facilities and standards of many centres. At this time all appears to be well with the scheme.

"The increase of tuition nets and the informal advice that examiners are able to give, not only at the test but also in their clubs, is having an interesting side effect. The new Class A amateurs, at least those bitten by the CW-bug, first try out their wings on the two-metre band, and the standard of operating is showing a steady improvement. Long may it continue to do so!"

It is interesting to note that in Ron's article he advocates a light tension and minimum gap on the key. This is in direct conflict to the suggestions I have received from ex-post office telegraphists who, as a rule, advocate gaps of an eighth of an inch or so and tensions of as much as seven pounds! No matter what advice one gives, there is always someone who has a better way and I suggest that all newcomers to the key experiment as much as possible to find out for themselves what suits them best. *But,* I could be wrong, as any piano teacher will tell you. If you don't learn the correct way your learned habits may prevent you from ever becoming a master. Certainly after listening to many PMG trained telegraphists and noting their beautiful rolling rhythm, I am inclined to agree that their teachers knew what they were doing. But, of course, none of this applies to the many of us who now, having their licence, have turned to electronic keys and paddles. Or does it?

73 Morsiacs for another month.

## US ILLEGAL CB OPERATION

The FCC do not 'pussy foot' when it comes to prosecutions. One character received a one year sentence for using higher than authorised power on the band. Eventually the offender received the mandatory 90 days incarceration, plus the following specific conditions such as three years probation, that he refrains from possessing or operating a radio transmitter, that he pays the United States US$1 025 and forfeits all the equipment that was seized from him by the US Marshall in 1986 and 1987. The offender must also perform community service as determined by his assigned Probation Officer.

I do not think even Perry Mason, Della Street or their able assistants would have got him off the hook on this charge. They do not 'muck' around in Michigan.

—Contributed by Ken McLachlan VK3AH, from the *ARRL Newsletter* August 2, 1988


# TEST TECHNICIANS/RADIO

As Manufacturer of Cellular Telephones, we have vacancies for Test Technicians at our new facility in Reservoir.

Applicants should be qualified Radio Tradesman and/or have experience relating to fault finding, testing and repair of U.H.F equipment. Experience with automatic test equipment would be an advantage.

We offer excellent working conditions, including R.D.O., Superannuation, and the opportunity to develop in the field of Electronics with a young growing Company.

Further information can be obtained by telephoning the Personnel Manager on 462 1733.

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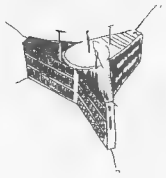

# AMSAT Australia

**Colin Hurst VK5HI**
*8 Arndell Road, Salisbury Park, SA. 5109*

**NATIONAL CO-ORDINATOR**
Graham Ratcliff VK5AGR

**INFORMATION NETS**

**AMSAT AUSTRALIA**
Control: VK5AGR
Amateur Check-In: 0945 UTC Sunday
Bulletin Commences: 1000 UTC Sunday
Primary Frequency: 3.685 MHz
Secondary Frequency: 7.064 MHz

**AMSAT SW PACIFIC**
2200 UTC Saturday
Frequency: 14.282 MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements, from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

## AMSAT OSCAR 13

Once again this month we have a collection of bulletins that have originated from AMSAT-NA by Rip WA2LQQ and AMSAT-DL.

However, prior to commencing those bulletins, perhaps we should reflect on the happenings of the last few months since the commencement of translator communication on AO-13. Listening around the bands I have gained the distinct impression that a number of satellite operators are distinctly unhappy with the results to date, when they compare to those results they believe they were getting from AO-10. I have purposely used the operative "believe" because amateurs are notoriously prone to forgetting the minor nitty gritties with time, myself being at the head of the list. Having said that, let us avail ourselves of some facts. First, there are some amateurs who I have spoken to who are positive that AO-13 is far superior than AO-10. These are satellite communicators who have got their "act together" and totally understand what it is all about. I would hasten to add that a number of these communicators have the very best in equipment and operating expertise, the result of many years of operating and on-air experience. Materially, we cannot all aspire to those levels of excellence, although we may dream of them. However, we need not despair and become disillusioned if our current results are not up to those we obtained with AO-10. Let me give you some thought provokers so that you can sit down and reflect where you may be able to improve your operating results with your current equipment, and where to wisely spend those hard earned dollars for the best results.

Just one further point that requires consideration. We were all spoiled by AO-10 by the continual re-orientation of AO-10 to meet the best power budget due to its unplanned orbital trajectory. The continual re-orientations allowed the antennas to be earth pointing more often than not at times other than apogee, hence the path losses for communication were significantly less thus allowing "better" communication. Operators in the Southern Hemisphere enjoyed the most gains from those manoeuvres.

However, that is all history, and now we all have to learn some new ground rules. Let us look at those ground rules.

1. The satellite is inclined at 57 degrees.
2. The AO-13 antennas are not damaged, those on AO-10 were.
3. The satellite is earth pointing at Apogee.

These three points are all intertwined with each other and I shall attempt to explain how they impact on our operating habits and how we need to adjust and start from scratch. Now that AO-13 is in its planned 57 degree inclination the Power Budget can be achieved without continual re-orientation. This in itself will be a blessing to the Command Stations who, with AO-10 spent many hours agonising over the correct orientation to ensure that the all important sun-angle attitude could be achieved.

Similarly, it means that the spacecraft can also be aligned to its optimum design criteria for most of its operating life, that is to have the antennas earth pointing at apogee, which is most important for Mode L operation. You may ask, "So what?". Well, the answer lies in the fact that all antennas have a designed bandwidth and there is an optimum time within the satellite orbit that the spacecrafts antennas and yours will be "communicatively compatible". This is no different than AO-10, and that is the reason that James Miller G3RUH, included in his now world-wide acclaimed program *Plan 10* the term *Squint Angle*. James' program calculates along with the other satellite criteria the angle subtended by the satellite and your QTH and this he called the *Squint* angle. Knowing the beamwidth of your antennas you can predict the optimum operating times. With the spacecraft now in a 57 degree inclination versus 27 degrees for AO-10 the significance of Squint Angle is magnified, when it comes to planning your operations.

Therefore those operators who have computers and do not have a copy of *Plan 10* would be wise to obtain a copy from Graham VK5AGR, (refer conclusion of column). The reference I made to AO-13's antennas not being damaged is also an important consideration to reflect on. From reports to hand it does appear they are exhibiting a "true" circular sense of polarisation on both the received and transmitted paths. I understand that variances of 20 dB have been measured whilst switching between vertical, horizontal, right and left circular with AO-13 downlink signals. Admittedly, this 20 dB variance would be a combination of the effects of Faraday rotation, uplink and downlink phasing, etc. However, it is of importance because even 3 dB is of paramount importance when it comes to satellite communication, let alone 20 dB. I also understand that currently the signals are for the majority of the optimum section of the orbit, exhibiting the design criteria of RH circular. These are just a few criteria that you need to reflect on when you are going to compare AO-10 with AO-13. Personally I do not believe you can truly compare the two spacecraft, however what you can do is be wiser in the knowledge of what AO-10 could not do versus what AO-13 offers for the future. As Sol reflects in the Castrol advertisements, "Oils aint Oils". Perhaps the lack of results that you may be currently experiencing could be self-induced, "familiarity breeds contempt". When was the last time you gave the satellite antennas some maintenance? My antennas need considerable maintenance as they blew down during a storm whilst I was overseas recently. However, I was aware that their performance had degraded prior to that, and it was obvious why when I picked up the pieces after the storm.

The prime degradation was from "well-weathered" coaxial cables, brittle outer sheath plus some rubbing, etc, moisture ingress, need I continue. How long have your antennas been up in the air, simply forgotten like a lot of others. Remember those dBs, one here and one there, may mean no signals from up there (AO-13).

Therefore, to ensure that you are hearing those downlink signals it may be opportune to check the following:

1. Mechanicals of system, loose elements, etc.
2. Degradation of coaxial cables, check loss with watt-meter, etc.
3. Check the phasing harnesses for RH/LH Circular.
4. Check out the coaxial switching relays moisture ingress.
5. Does the masthead amplifier still effectively function?
6. Is your azimuth rotator correctly calibrated?
7. Is your elevation rotator also calibrated correctly?
8. Is your antenna system ideally located in respect to:
   a) Feedline lengths?
   b) Noise sources? (Why not lower the system closer to ground level and shield them from noise generators, cars, etc. Remember the majority of the time the antennas are sky-pointing.)

The cold hard facts in respect to satellite communication is the fact that, unless you can hear those downlink signals, you cannot effectively work through the translators. I recommend to all satellite communicators to use the General Beacon on 145.812 MHz, plus or minus doppler as your reference signal. It is pointless and foolhardy to even attempt communication through AO-13 (or AO-10 for that matter) unless you can consistently copy the beacon. Your downlink signals (provided you conform to the recommended uplink power requirements) will be of a comparable signal strength to that of the general beacon. It is extremely embarrassing to note operators in the downlink passband 10 dB stronger than the beacon, bemoaning the fact that they cannot hear the other signals, that the other stations must be doing something wrong, because he can hear his own signal okay.

Now follows the various bulletins from AMSAT-DL and AMSAT-NA.

## HR AMSAT NEWS SERVICE BULLETIN 215.01 FROM WA2LQQ WARWICK, NY August 2, 1988

AMSAT OSCAR 13's linear transponders, Mode B, J and L have been putting in regular service for more than a week now and, while Modes B and J have been drawing rave reviews, Mode L reports from US users were not quite as rosy. Since August 1, however, US Mode L users have gotten to see the satellite from a different perspective in both a literal and figurative sense. The result is a renewed optimism in Mode L functionality.

During its first week of operation beginning July 24, would-be Mode L users in the US were discouraged by poor results and confused by optimistic reports originating in Europe. Many couldn't even find their downlinks. This has been determined to be the result of two factors:

1. The Mode L translation frequencies previously published have been invalidated (probably by a change in an electrical parameter in the transponder), so many were listening on the wrong frequency, and
2. Perspectives on the satellite from the US were poor.

Last week, European Mode L users were looking "right down the barrel" of the satellite's Mode L receive antenna and had good results. In contrast, US Mode L users were pounding against the side of the satellite outside the narrow Mode L uplink beam. Now that US users are well-situated in the beam, reports from US Mode L users are much more positive.

According to AMSAT officials, recent tests on Mode L indicate its performance is actually quite good; even better than AO-10 was expected to be had it worked properly. AO-13 is exceeding the expected performance of AO-10 Mode L by a dB or two they said. Whereas uplink recommendations for AO-10 Mode L were in the 3 kW EIRP range, it now appears a good, if not booming, SSB QSO can be had under good conditions with 2 to 3 kW (33 - 34.8 dBW) EIRP or with 1.5 to 2 kW (31.8 - 33 dBW) EIRP under ideal conditions. These values can be reduced by another 3 dB if right hand circular polarisation (RHCP) is used on the uplink instead of linear polarisation. Under transponder loading, however, the required uplink power will obviously go up.

In sum, under totally ideal conditions (boresighted, RHCP and alone on the transponder), about 800 watts (29 dBW) EIRP will be adequate for a reasonably good SSB QSO. Under less than ideal conditions, you will need more power. It would be a good idea to have another 6 to 8 dB in reserve. Using 30 watts to a pair of 20 dB loop Yagis will yield about 37.3 dBW (5.4 kW) EIRP including splitter losses.

So, AO-13 is, in fact, doing quite well! And last week's optimistic reports by G3RUH and other Europeans have been largely corroborated by subsequent reports from US users.

The key to the renewed optimism is the realisation that there is an additional constraint on Mode L use beyond that of the Mode B and J transponders. That additional constraint is the satellite's 24 centimetre uplink antenna beamwidth. Its fairly narrow beamwidth (-3 dB value is 49 degrees), combined with the beamwidth of the 70 centimetre downlink antenna means one needs to be fairly close to "boresight" to do well on Mode L. But now that that fact is recognised, Mode L users can take it into account in planning their use of this powerful mode and be successful.

Mode L is not just a higher frequency Mode B, AMSAT officials point out. When planning Mode B operations, one simply checks to see if the satellite is above the horizon and if the Mode B transponder is scheduled to be on. With Mode L, they point out, there is an additional consideration: Where is the narrow 24 centimetre footprint relative to you?

The angle between the boresight and your QTH is often called the squint angle. In AMSAT's *Quiktrak* program it is called PA or pointing angle. Using *Quiktrak,* one can readily determine when the PA is sufficiently low so as to facilitate Mode L QSOs. Best results occur when PA is less than about 10 degrees. When using *Quiktrak,* be sure to set STARTYPE to 0 to get the pointing angle correct.

The current BAHN co-ordinates for OSCAR-13 are about BLON=180,BLAT=0.

Now that both the Mode L frequency translation matter and the squint angle issues have been resolved, Mode L use in the US is expected to skyrocket. Equipment suppliers already report unprecedented activity in 70 and 23 centimetre equipment and attribute this largely to a huge ground swell of interest in AO-13. AMSAT says it is preparing numerous special event activities on Mode L including the return of the popular ZRO Test and Technical Achievement Awards Program. Stay tuned.

## HR AMSAT NEWS SERVICE BULLETIN 219.01 FROM WA2LQQ WARWICK, NY August 6, 1988

With more than two weeks experience on the new AMSAT OSCAR-13, the number of users on all modes is increasing as is their apparent satisfaction. Veterans and newcomers alike are praising the new satellite even as it remains in the engineering phase prior to its official turnover for general operations. The condition of the satellite continues to be excellent and, except for an apparent glitch in the RUDAK packet system, optimism prevails.

Modes B and J have been widely applauded for their performance. Their sensitivity seems to be excellent. Although there seems to be a few times when the officially recommended uplink power levels suffice, this clearly is attributable to transponder loading and the realisation of a typical power escalation scenario.

Higher than the officially recommended uplink power levels are apparently being used by most Mode B and J users. There is thought to be a power escalation cycle that is initiated or accelerated by a few stations who have wholly inadequate receive systems. All users *must* be aware a preamplifier is essential for all AO-13 modes. Operating without one is a prescription for failure. Operating *with* a good preamplifier (preferably at the antenna) can convert all the modes (especially L) from a strain to a plain joy.

Perhaps the biggest turnaround in user opinion has occurred in the Mode L domain. When first turned on July 24, Mode L was thoroughly panned by US users. Based on what they saw, US users were wondering what European Mode L users were cheering about. It was subsequently learned European Mode L users enjoyed a very strong uplink advantage in the first few days of its operation as a consequence of the squint angle of the satellite; the offset angle between the Mode L uplink antenna and the uplinking station. Analysis now shows a squint angle greater than 10 to 15 degrees to be anathema for good Mode L QSOs.

Another confusing element. which strongly abetted the gap between US and European reports on Mode L performance, was the discrepancy between previously published Mode L frequencies and the *actual* Mode L frequencies. For reasons not yet clear, the frequencies previously published by AMSAT-DL and reiterated by AMSAT-NA and in various US publications have proven erroneous. (The Mode B and J frequency discrepancies are inconsequential; Mode L frequency disparity is substantial).

The combination of amplitude and frequency discrepancies led many US satellite users to conclude Mode L had actually failed entirely. Few could even find their downlink at all using all the power they had available to them.

Fortunately, the big swing in opinion came like a whipsaw last week as Mode L showed off its best to the west. Favourable squint angles have come to the US and Mode L users there have changed their views entirely; have been showing up in droves on the new mode.

And, as may be characteristic of US amateurs, they vote with their pocketbooks. When they like something, they support it with equipment purchases. Equipment dealers report an unprecedented run on 24 centimetre equipment; a sound vote of confidence in Mode L if there ever was one!

With the excellent conditions, analysts too have had a good chance to measure the actual Mode L performance. The results show what to expect under ideal conditions and what to expect otherwise. The resulting numbers suggest AO-13 Mode L is now working better than AO-10 Mode L ever was expected to! (Specific data in a separate bulletin).

On a slightly less positive note, AMSAT-DL workers report there is a problem with RUDAK, the packet digipeater developed in Munich. When attempting to boot-load from the PROM, the RUDAK CPU runs for a while but then hangs up. The 10 byte loader module will not allow a special program to be loaded into RAM. It is now recalled from the thermal vacuum tests that the PROM (a fusible link type) was then found to be temperature sensitive. AMSAT-DL is evaluating ways of warming the RUDAK module. One scheme being considered calls for energising the module next to RUDAK, the Liquid Ignition Unit (LIU). This will warm up RUDAK considerably and may solve the problem they say.

In sum, AO-13 continues to provide excellent performance on all its linear transponders. The RUDAK is being investigated for a possible thermal malfunction and Mode S may be activated next month. New and veteran satellite users alike are singing the satellite's praises and apparently thoroughly enjoying the new bird! Equipment dealers are being swamped with 24 centimetres equipment orders and there seem few remaining open questions on what Mode L is capable of.

## HR AMSAT NEWS SERVICE BULLETIN 219.02 FROM WA2LQQ WARWICK, NY August 6, 1988

On-orbit AO-13 Mode L performance tests completed last week strongly suggest it is working well indeed; better even than its predecessor (AO-10 Mode L) was expected to work. The key to success on Mode L is now clearly shown to be closely coupled with the positioning of the satellite's Mode L 24 centimetre uplink receive antenna.

As expected, under poor conditions copious uplink power is required. Many tens of kilowatts (EIRP) will be insufficient under the worst conditions. But under good to ideal conditions, very moderate power levels will provide satisfactory results.

The key to Mode L success, analysis this week has shown, is that users must pay close attention to the pointing or squint angle of the satellite's 24 centimetre helix uplink antenna. Under good conditions, an approximate two hour sub-window of optimum Mode L time will exist within the general Mode L window for a given QTH.

About half the total Mode L time is the prime Mode L sub-window where the squint angles are 10 degrees or less. According to Mode L operator John Gayman WA3WBU, when squint angles get much over 10 degrees, Mode L uplink power requirements skyrocket.

Thus it is important to determine the timing of that prime sub-window when your QTH will fall within that acceptance cone. AMSAT's *Quiktrak* program computes the positioning of the cone based on the satellite's attitude in Bahn co-ordinates, its current position on orbit and your QTH. The pointing angle (PA) or squint angle parameter is output by *Quiktrak.*

Under thoroughly ideal conditions, it now appears a Mode L uplink of 29 dBW (about 800 watts) EIRP will produce about a 10 dB signal to noise ratio in a 2.4 kHz channel when received on a system with an approximate 50 degree Kelvin system noise temperature at or near to apogee. (Figure of Merit = -2 dB/K). A 50 degree K, 435 MHz receive system might consist of a 0.6 dB noise figure preamplifier behind a 15 dBic RHCP antenna and a standard, modern SSB UHF receiver. (CW signal performance is proportionately better).

However, under most practical operating conditions, more uplink power will certainly be required on Mode L. Factors increasing Mode L uplink power requirements include polarisation losses (3 dB penalty for running linear polarisation instead of Right Hand Circular Polarisation); squint angle (penalties mount very fast beyond squint angle of 10 degrees); increased path losses; increased absorption at low elevations angles; heavy transponder loading; local impediments (trees, houses), etc.

Based on these preliminary estimates, it now appears 33 dBW (2 kW) EIRP is the lowest *practical* level Mode L SSB users should expect to be regularly successful with. For higher reliability, that is for your ability to work well when combining penalty factors as described previously, another 5 dB or more should be available. Based on these tests then, 38 dBW (6.3 kW) EIRP can be expected to produce good SSB results under most (but definitely *not* all) operating conditions.

Obviously, if one wants to work under the most adverse conditions with strong, compound penalty factors, much more power will be needed.

The 38 dBW level seems, however, to be a reasonable compromise between performance, reliability, cost and physical structure. For example, 30 watts applied to the feed of a pair of 20 dBi loop Yagis will produce about 37.3 dBW (5.4 kW) EIRP including losses; sufficient for good SSB QSOs under most conditions and excellent for CW under most conditions.

Comparing AO-13 Mode L and AO-10 Mode L, it now appears the actual measured performance of AO-13 Mode L exceeds the expected performance of AO-10 Mode L by 1 to 2 dB. (Of course, AO-10 Mode L never actually achieved its potential performance by a factor of at least 10 dB). By contrast, AO-13 Mode L is coming close to its corrected specifications.

### HR AMSAT NEWS SERVICE BULLETIN 219.03 FROM WA2LQQ WARWICK, NY August 6, 1988

AMSAT OSCAR-13 continues under engineering jurisdiction and has not yet been officially released for full operations. Spacecraft controllers and engineers have been meeting in Marburg, West Germany to evaluate spacecraft systems performance to date and to plan general operations for the near-term and mid-term period. They have agreed on the following revised schedule said to be effective until September 21, but subject to change for continued testing.

**Revised Operating Schedule: V3.0 August 6, 1988**

| MODE | FROM (INCLUS) | THRU (INCLUS) | REMARKS | DURATION MA MINUTES |
|---|---|---|---|---|
| Off | MA 241 | MA 002 | Solar eclipse window | 18 48.3 |
| Mode B | MA 003 | MA 099 | | 97 260.2 |
| Mode L | MA 100 | MA 180 | Mode JL optional | 81 217.3 |
| Mode B | MA 181 | MA 220 | | 40 107.3 |
| Mode B | MA 221 | MA 240 | With omni antennas | 20 53.6 |
| Mode S | | | Commence September (?) Testing; ops pending | |
| RUDAK | | | | |

The current attitude is approximately BLON = 180, BLAT = 0.

The updated frequencies, based on in-orbit tests and corrected for Doppler shift, to within 1 kHz, are:

Mode B: the sum of uplink and downlink frequencies equals a constant 581.398 MHz. At Mode B mid-band, 145.890, the required uplink is 435.508 MHz.

Mode J: the sum of uplink and downlink frequencies equals a constant 5800.413 MHz. At Mode J mid-band, 435.965, the required uplink is 144.448 MHz.

Mode L: the sum of uplink and downlink frequencies equals a constant 1705.356 MHz. At Mode L mid-band, 435.860, the required uplink is 1269.496 MHz.

### HR AMSAT NEWS SERVICE BULLETIN 219.04 FROM WA2LQQ WARWICK, NY August 6, 1988

Over 160 persons from 19 countries attended the third AMSAT-UK/UOSAT Space Colloquium held at the University of Surrey last weekend (July 29-31). International speakers presented 20 papers on diverse topics, covering:

Geostationary AMSAT Phase 4 spacecraft designs
AMSAT Phase 3D spacecraft design
UOSAT-C, D and E spacecraft technologies
Amateur radio using High Altitude Balloons
AMSAT OSCAR-13 spacecraft orbital commissioning and operations
UOSAT-1 and 2 spacecraft orbital operations
The Chinese Space Program
Digital signal processing techniques for amateur satellite communications
Packet Radio Satellites
Soviet/Canadian Transpolar Skitrek Future Soviet amateur radio satellites

Among the many radio amateurs who attended were Jan King W3GEY, Karl Meinzer DJ4ZC and Leo Labutin UA3CR. Leo was particularly welcome and read a paper describing the Skitrek project and spoke on future Soviet satellite plans.

The Colloquium was preceded by a one-day Satellite Technical Workshop devoted to detailed discussions of advanced amateur satellite techniques and a one-day co-ordination meeting sponsored by the Radio Society of Great Britain focusing on funding, frequency allocation and educational matters.

Colloquium proceedings, comprising 16 of the papers presented, were sold out, however, additional copies will be available shortly from AMSAT-UK. The sponsors send their thanks to all who visited UOS last week and who made the Colloquium such a success! (Bulletin per UO-11 BBS; thanks UOS).

### HR AMSAT NEWS SERVICE BULLETIN 219.05 FROM WA2LQQ WARWICK, NY August 6, 1988

The UO-11 Digital Communications Experiment (DCE) packet radio gateway network continues to grow. ZL1AOX, VK5AGR, GB3UP and ZS6SAT are passing messages for large packet radio user networks in New Zealand, Australia, the UK and South Africa. A new station, ZL5BA, is located on Ross Island in the Antarctic. The operator there (Sojo) is working at a Greenpeace scientific base. He will use his DCE station for recreation and to send health and welfare messages home for the others at his base. ZL5BA was activated on July 29, and is providing an interesting insight into the coverage received by polar stations from a polar orbiting satellite. He sees UO-11 on almost every pass although some times of day provide higher elevations than others.

Surrey plans to commission a USA gateway soon. The station is N6IIU in the San Francisco area. This station is located in a Red Cross headquarters which already houses an emergency communications station and a packet BBS.

Discussions are also under way with an East Coast USA amateur. Meanwhile, a gateway in West Germany is also almost ready to go. DB2OS, one of the AO-13 control operators, will bring DCE access to the well-developed European packet radio network. When the USA and Europe are on line, the DCE will be able to link together all of the major amateur radio packet networks world-wide. (Bulletin per UO-11 BBS; thanks UOS).

### HR AMSAT NEWS SERVICE BULLETIN 219.06 FROM WA2LQQ WARWICK, NY August 6, 1988

Recently, Leonid Labutin of Moscow, a prime mover in the Soviet Radio Sputnik (RS) program, said that on July 15, the first western amateur visited the USSR RS command station RS3A in Moscow. Danny interviewed the chief operator, Leo Maxakov RA3AT, made tape recordings and took pictures.

According to Nico Janssen PA0DLO, upon Danny's return to Stockholm, he promised to make an extensive report on his visit to RS3A. One of the interesting things he has already told the European AMSAT Net (on July 23) was, that according to the operators at RS3A, the old RS satellites, RS-5 and RS-7, are definitely out of operation now. RS3A has gradually lost control over these last two active RS satellites of the RS-3 to RS-8 series. They are convinced that the batteries in RS-5 and RS-7 are dead so no new activities can be expected from these satellites. RS-3 through RS-8 were launched together on December 17, 1981.

### AMSAT-AUSTRALIA NEWSLETTER AND SOFTWARE

The fine monthly publication *AMSAT-Australia Newsletter* published on behalf of AMSAT-Australia by Graham VK5AGR, now has 250-plus subscribers. Should you also wish to subscribe than send a cheque for $20, made payable to AMSAT-Australia and post to: AMSAT-Australia, C/- PO Box 2141, GPO, Adelaide, SA. 5001.

The newsletter provides the latest news items on all satellite activities and is a must for all those seriously interested in amateur satellite activities.

Graham also provides a software service in respect to general satellite programs made available to him from various sources. The only requirements to make use of this service is to send Graham a diskette nominating your requirements, a nominal $10 donation to AMSAT-Australia and sufficient moneys for return postage and packing. To obtain details of the programs available and other AMSAT-Australia services send an SASE to Graham.

de Colin VK5HI
**ar**

## VOICE REPEATER GUIDELINES

Repeaters are established primarily to extend communication-range of mobile stations in the VHF and UHF bands. However, they may also be used as calling channels for initial contact before switching to a simplex frequency. As well, they provide contact facilities for radio amateurs in remote locations where simplex communication is not normally possible.

Operating Conventions — Each transmission should not exceed two-minutes. Repeaters have timers to limit transmission length.

Before replying, let the repeater "drop out" and wait at least three seconds before transmitting. This allows others immediate access (see #).

Do not reset the timer to extend your own transmission time.

Keep contacts brief and to the point. If you have nothing to say, don't say it! Limit your group QSO to a maximum of 10 minutes.

Avoid over-use of call signs. They are required at the start and end of a contact, and at least once every 10 minutes. But call signs can be dropped from the start and end of transmission during a contact. Phonetics are also over-used on repeaters, particularly in call signs.

# To gain access to a repeater which is being used by others, simply announce your call sign during the pause between overs.

# If using a repeater and another station announces its call sign during the pause, let that station go ahead immediately. He or she may have an urgent message.

Do not transmit on repeater output frequencies. Use reverse facilities only to observe another station's input signal strength. If satisfactory, then QSY to a simplex channel.

Ignore annoying transmissions. Do not respond or comment on a transmission not identified by a call sign.

There is no need to call CQ on repeaters. Just announce your call sign and say you are listening the frequency.

The use of repeaters for liaison to establish a contact on another band is permissible, but cross-band contacts using a repeater are not encouraged. Where cross-band contacts are made all frequencies must be announced by all parties.

Priority must be given to normal repeater usage.

Be courteous and unselfish at all times, and always be aware of the needs of other people who have an equal right to share the repeater.

If you hear someone new to repeater operation, assist and educate them in a courteous manner.

Remember others including new or potential radio amateurs monitor repeaters — the image of amateur radio is important.

**ar**

## SATELLITE ACTIVITY FOR MAY AND JUNE 1988

### *1. LAUNCHES*

The following launching announcements have been received:

| INT'L NO 1988 | SATELLITE | DATE | NATION | PERIOD min | APG km | PRG km | INC deg |
|---|---|---|---|---|---|---|---|
| 044A | Molniya 3-326 | May 26 | USSR | 12hr17m | 40716 | 636 | 62.5 |
| 045A | Cosmos 1949 | May 28 | USSR | 90.0 | 431 | 412 | 65.0 |
| 046A | Cosmos 1950 | May 30 | USSR | 116.0 | 1534 | 1503 | 73.6 |
| 047A | Cosmos 1951 | May 31 | USSR | 88.8 | 272 | 187 | 82.3 |
| 048A | Soyuz TM-5 | Jun 07 | USSR | See | Note | | |
| 049A | Cosmos 1952 | Jun 11 | USSR | 89.4 | 300 | 215 | 70.0 |
| 050A | Cosmos 1953 | Jun 14 | USSR | 97.8 | 680 | 647 | 82.5 |
| 051A | Meteosat P2 | Jun 15 | ESA | 1439 | 35889 | 35796 | 0.5 |
| 051B | OSCAR 13 | Jun 15 | Amateur | 637.9 | 36094 | 242 | 10.0 |
| 051C | PAS 1 | Jun 15 | USA | 1441 | 36162 | 35612 | 0.1 |
| 052A | Nova 11 | Jun 16 | USA | 103.8 | 1105 | 773 | 90.1 |
| 053A | Cosmos 1954 | Jun 21 | USSR | 108.8 | 819 | 783 | 74.0 |
| 054A | Cosmos 1955 | Jun 22 | USSR | 89.8 | 382 | 181 | 64.8 |
| 055A | Cosmos 1956 | Jun 23 | USSR | 88.8 | 265 | 196 | 82.3 |

### *2. RETURNS*

During the period 62 objects decayed including the following satellites:

| | | |
|---|---|---|
| 1987-104A | Soyuz TM-4 | Jun 17 |
| 1988-038A | Progress 36 | Jun 05 |
| 1988-041A | Cosmos 1944 | Jun 23 |
| 1988-042A | Cosmos 1945 | May 31 |
| 1988-047A | Cosmos 1951 | Jun 14 |

### *3. NOTES*

**1988-048A Soyuz TM-5:**

**Cosmonauts Anatoliy Solovev, Viktor Savinykh and Aleksandr Alexsandrov were on-board this spacecraft which will conduct 46 astrophysical experiments. The craft docked with space station MIR on June 9, 1988.**

**1987-104A Soyuz TM-4:**

**The same cosmonauts undocked from MIR on June 17, in Soyuz TM-4. The descent capsule touched down 202 kilometres south-east of the city of Dzhezkazgan.**

**(An Afghan and two Soviet cosmonauts blasted off from Baikonur in the last week in August on Soyuz TM-6 to join two cosmonauts aboard the MIR orbiting station. Captain Abdol Ahad Mohmand, 29, is the first Afghan in space.).**

—Contributed by Bob Arnold VK3ZBB

**ar**

# Education Notes

**Brenda Edmonds VK3KT**
*FEDERAL EDUCATION OFFICER*
*PO Box 883, Frankston, Vic. 3199*

Discussion with DOTC officers at the Joint WIA/DOTC meeting in July and since then have provided an update on the state of the Devolvement procedures.

Those of you who have applied for accreditation as examiners should by now have received letters from DOTC explaining the situation. Staff shortages and the need to check and refine the computer program for selecting questions, has delayed the start of accreditation procedures, but I have been assured today (August 19) that both theory question banks are complete and entered into the computer, and that the Regulations bank is progressing.

The banks will probably be made available to intending examiners on disc (IBM compatible) or as a printed version. The CW examination generating system will be on disc, with a set of guidelines for producing suitable tests. The program controls the length and speed of the section.

The intended procedure will be that when applying for accreditation, and intending examiner should also request copies of the relevant banks or programs, which are then used to generate the examination paper or tape. The paper or the text of the CW sending or receiving must then be submitted to DOTC for approval. It is suggested that questions should be identified to the bank for ease and speed of checking. Non-bank questions may be used, but approval of these may take longer.

As part of the approval process, the Department will check the actual questions, the balance of questions according to the distribution table, and the overall standard of the whole paper. If it does not gain approval, the sender may be asked to make adjustments.

Examiners will be asked to notify their local State office (and RI if not in capital cities) of the intended times and locations of proposed examinations, so that inquirers at these offices can be directed to appropriate centres, and the DOTC staff can visit the examination if they wish.

Proformas will be published for examination entry, for notification of results to DOTC and for advice to candidates.

Other information to come out of the discussions is that one person is to be appointed to handle all the examination matters. The appointment should have been made by the time this is published.

We also have an assurance that however long it takes to complete the devolvement, there will be a 'phase-in' period. That is, the February examination may not be the last run by DOTC. If necessary, one will be held in May, and perhaps even August.

The new Regulations leaflets are coming along well and should soon be available for issue. Once they are generally available, they will become the basis for the examinations — so questions on mode designations will become valid. I have been assured that the leaflet will contain a clear explanation of the code, and the questions asked will not require a correct 'translation' of the code before the question can be attempted. We will be notified before any changes to the present system occur.

We must also consider possible additions to the Novice syllabus now that they have access to VHF and FM. It seems reasonable that an elementary knowledge of FM at least should be necessary.

Some readers may not be aware that a minor change to the question distribution on theory papers was negotiated recently.

The original devolvement document circulated proposed a fairly radical change, but agreement was reached to increase the emphasis on semiconductors at the expense of vacuum tubes, and, on the AOCP, to add another 'Advanced Modes' question instead of one Interference Question. These changes reflect to some extent, the advances in technology in the time since the last revision in 1984.

I think it is preferable to make small adjustments every four to five years, rather than to have major revisions every 10 or 12.

I am interested in hearing the state of devolvement planning in the Divisions, clubs or other groups. I think I have suggested before that here is a case for co-operation and sharing of resources such as examination materials or even equipment or manpower to help the smaller or remote groups.

The service we supply in providing and administering examinations has the potential to attract many of the new recruits into the Institute. This is the biggest chance we have had since the CB boom. I hope we can make the most of it by providing a quality service and a follow-up which will convince the newcomers of their need to join the Institute if they are to participate fully in their new hobby.

ar

*in* VK6 *for*
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# QSLs from the WIA Collection

**Ken Matchett VK3TL**
*776 Warburton Highway, Seville, Vic. 3139*

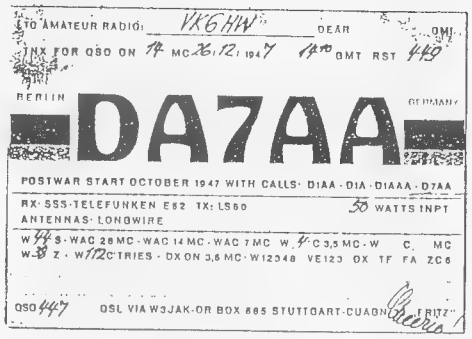
The QSL **DI9AA** shows a most uncommon prefix. It was a maritime mobile station belonging to the German exploration ship *Zarifa*, a 320 tonne three-masted schooner. The aim of the expedition was to carry out underwater research during which photography was to play an important role. We can see the underwater cameras with which the couple in the photograph are equipped.

The gentleman is Doctor Hass, a prominent German zoologist. The lady, also dressed in diving gear, is his wife Lotte, who was the only female aboard. The ship set out from Hamburg, Germany and aimed to travel via the Azores and the Caribbean to the Galapagos.

This QSO, details of which appear on the QSL, was dated December 4, 1953, and was between Stan VK3TE and Heino Sommer, the ship's doctor (who incidentally was the ship's radio operator), when the *Zarifa* was berthed at Bonaire in the Netherlands Antilles.

The QSL, **DA7AA** bearing the unusual DA prefix is that of a German national (appropriately called "Fritz"), despite the fact that no licences were granted to German nationals at that time. During the years 1947 and 1948, there were several stations on the amateur bands signing with the prefix DA. The Office of Military Government (US) in Germany, advised in June 1948 that "No DA prefixes are legally authorised and action is being taken to identify and apprehend the operators involved". At the time there were several appeals to operators not to send DA prefix QSLs through QSL bureaus. The magazine *QST* in its May 1948 edition, put the matter plainly: "This DA business over there is unauthorised stuff and until the air clears a bit there'll be no recognition of it in this pillar, okay?". Ironically, the much maligned DA prefix (DA1 to DA4), was subsequently allocated to foreign occupation personnel in West Germany.

Just after the war, the prefix allocation D2AA — D2ZZ was given to qualified British military occupation members, D4AAA — D4ZZZ to US forces, and a limited number from the block D5AA — D5ZZ to French occupation personnel. In early 1949 the D2 prefix became DL2, D4 became DL4 and D5 changed to DL5. At the same time, German nationals were permitted to hold amateur licences and were allocated other DL calls, the February 1949 edition of *QST* stating that "about 800 German amateurs have qualified for their new DL calls and should be on the air soon.". The situation is a little different today. West Germany's growing affluence has seen the number of licensees increase to more than 50 000, a figure being exceeded only by that of one other country — the United States of America.


TO AMATEUR RADIO: VK6HW DEAR OM
TNX FOR QSO ON 14 MC 26.12.1947 1430 GMT RST 449
BERLIN GERMANY
DA7AA
POSTWAR START OCTOBER 1947 WITH CALLS: DIAA-DIA-DIAAA-D7AA
RX: SSS-TELEFUNKEN E52 TX: LS50 50 WATTS INPT
ANTENNAS: LONGWIRE
QSO 447 QSL VIA W3JAK-OR BOX 665 STUTTGART-CUAGN FRITZ

The receiver information on the D4BAR QSL "RX OV2P" (more commonly written O-V-2) indicated that the set had no RF amplifier, a detector (V) and two stages of audio amplification. Using 100 watts, Hans did very well as an operator, his QSL showing that he "Worked All Continents" in one hour 50 minutes, as well as winning a few international contests. His "Tu nice buzz" takes the place of our more modern "Tnx fb QSO".

Hans' QTH was Nurnberg (Nuremberg in English) which was a very strong centre of the Nazi party. In fact, it was the "Nuremberg Laws" of 1935 that actually legalised the widespread oppression of the Jews. Nuremberg was occupied by US forces in the last months of the war and became part of the US zone of Germany. The date of the QSO was 1934, Herr Hitler having become Chancellor of Germany upon the invitation of President von Hindenburg during the previous year.

DI9AA
DR. HANS HASS
X·A·R·I·F·A
Expeditionsschiff „XARIFA"
TX: VFO - PA, 75 W, Mod G 3
RX: K ST - SH 9
This confirms our ☐/fone contact of 4/12 1953 at 0600 GMT
on 14.2 Mc Your RST: 4.7 QTH at time
of QSO: BONAIRE Pse QSL via DARC München 27 P.B. 99
73 es good luck! Op.: Dr. Heino Sommer

**D4BAR,** is plainly adorned with the Nazi symbol, the swastika, and although this became a hated symbol of fascism and oppression in later years, was at the time of this QSO, just another national symbol not unusual on many QSLs of today such as the maple leaf of Canada, or the Cross of David on Israeli QSL cards.

The letter D is amongst the earliest allocated prefixes following the supplanting of the old "intermediates" in 1929. In the early days of course, there was only one Germany and so the German authorities had the option to allocate any call sign beginning with the letter D, using D by itself or D followed by another letter (a later development). Just after the World War II, the only German amateur licences were given to the occupation forces, and these used the old D prefix. In fact, the prefix D (Deutschland = Germany) was one of only six single-letter prefixes originally allocated, the others being F (France), I (Italy), G (Great Britain), J (Japan) and U (USA). Only the first three have survived to the present time in their original form, prefixes D, J and U having been reallocated in recent times to other DXCC countries.

## QRM DEVASTATES 10 METRES

This is fact, not fiction and may be backed by any 10-metre band enthusiast. It is a problem that must be dealt with, before the solar cycle peaks, as this is a band that is different from all others by the devoted attitude, co-operation and general goodwill that is instilled in all that use it.

The daily round-the-clock intrusions can be heard at any time and it is thought that operators throughout Australia are being disadvantaged by the Asian orientated QRM, from making valid contacts to other continents with good reports. Please listen and make your contribution to your Intruder Watch Co-ordinator to assist in eradicating these menaces before they remove the amateur service from the band, that may be lost for all time. The saying 'Use them or lose them', has never been so true. Anyway who wants to know who wants a taxi or where are the best fishing grounds, particularly when they cannot understand or use the information?

—Contributed by Bill Martin VK2COP and Ken McLachlan VK3AH

# Electro-Magnetic Compatibility Report

**Hans Ruckert VK2AOU**
*EMC REPORTER*
*25 Berrille Road, Beverly Hills, NSW. 2209*

## THE FERRITE CORE CHOKE SOLVED THE EMC PROBLEMS

It was mentioned in earlier EMC reports that most modern electronic equipment used by the general public no longer has a metal chassis, which could be considered as an earth reference point, while a two-pin mains plug with a two-core lead has replaced the former three-pin plug and three-core cable. This "improvement" means that add-on plug-in filters using L-C components, tuned filter circuits and a shielding can maybe ineffective, because the shield and filter earth points are no longer earthed, causing the filters to be largely bypassed by the unwanted RF.

Ferrite core chokes can be used to reduce greatly the unwanted RF reaching the equipment (television, video recorder, Hi Fi, organ, computer, etc) via the mains cable, other attached connecting cables or the feeder braid shield. In the case of the mains choke, the wire must be thick enough to carry the operating current, and the insulation must be good enough to be safe. On the other hand, the cable must not be so thick that the choke coil is difficult to wind around the core or has insufficient turns — 15 turns, more if possible, should be used. Male and female plugs should be attached. It is sufficient in less difficult cases to attach the choke to the power point at the wall, and to curl up the mains cable near the equipment. In difficult cases the choke must be as close to the equipment as possible, cutting the mains cable. The ferrite core used must be of the low-Q high permeability type as used in television line frequency transformers. High-Q low permeability antenna rods will only be effective if 30 or more turns can be applied.

Ferrite television line-output C-cores and 15 turns of mains cable effectively stopped my amateur signal from reaching my neighbour's television set. It also stopped the RFI from the line frequency oscillator from reaching my receiver. This had been a 4 kHz wide S5 signal every 15.625 kHz on 20 metres and worse at lower frequencies, whenever my beam was pointing in the direction of the next door house.

A highpass filter near the tuner and a feeder braid breaker filter did not help greatly. A ferrite antenna rod choke did not work either, its permeability being too low.

The mains cable ferrite core chokes and feeder braid chokes were tested using a signal generator and a sensitive RF volt-meter with -70 dBm range. The attenuation amounted in all cases to about 35 dB between 10 and 420 MHz. The wanted signal is not attenuated by the braid separation choke, unlike some not so good high pass filters. The same mains ferrite choke, placed between the power point and my wife's electronic organ, stopped my signal from affecting the organ, and also the organ signal was no longer heard on shortwaves. Who is disturbing whom? The braid stopping choke was wound with thin coaxial cable on a ferrite ring core of 40 millimetres OD and 90 millimetres ID. The braid breaker choke can also be used on Hi Fi, AM, FM receivers, whilst the mains choke can be used also to protect computers and Hi Fi receivers from mains high voltage high frequency spikes, which could blow up transistors and ICs.

**Who Said SMA Connectors Are Expensive .... ??????**

Whoever it was obviously didn't ask us. Our range of SMA connectors and accessories are not only good value, they work well too.

**SMA Loads**

A recent survey by us found that in small quantities SMA 500mW terminations are selling for $78 to $135 each in Australia. Why?.. Well we don't know because the EMC range of SMA loads (they are among the best in the world) are selling for nothing like these prices at Stewart Electronics. Best of all they are available NOW from STOCK from us in Melbourne.

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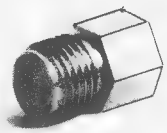
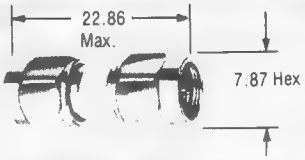
As more and more equipment starts to use the 3mm or SMA connector we need adaptors to interface with existing equipment. These American made adaptors offer excellent quality at reasonable prices.
We also stock a large range of SMA, SMB & SMC connectors and Semi-Rigid 50-Ax cable to suit please send for a full listing post free.

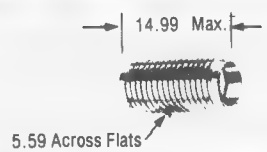


**TC17 ... 1 watt FEMALE LOAD**
$58.60 + 20% sales tax

| Pd | = 1W (DC - 18GHz) |
|---|---|
| Freq. | VSWR |
| 4GHz | <1.05 |
| 8GHz | <1.12 |
| 12GHz | <1 15 |
| 18GHz | <1.20 |



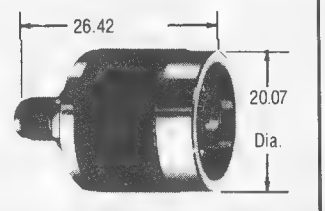

PC67 SMA F-F
$30.96 +20% tax



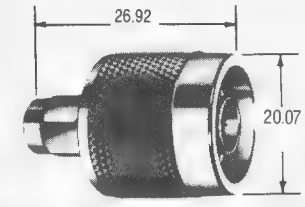

PC66 SMA M-M
$36.25 +20% tax

**TC19 ... 1 watt MALE LOAD**
$32.36 + 20% sales tax

| Pd | = 1W (DC - 18GHz) |
|---|---|
| Freq. | VSWR |
| 4GHz | <1.05 |
| 8GHz | <1.10 |
| 12GHz | <1.15 |
| 18GHz | <1 20 |




PC58 SMA M to N Male
$79.98 +20% tax




PC59 SMA F to N Male
$75.17 +20% tax

**TC18 ... 2 watt MALE LOAD**
$46.90 + 20% sales tax

| Pd | = 2W (DC - 18GHz) |
|---|---|
| Freq | VSWR |
| 4GHz | <1.05 |
| 8GHz | <1.10 |
| 12GHz | <1.15 |
| 18GHz | <1 25 |

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# Magazine Review

**Roy Hartkopf VK3AOH**
*34 Toolangi Road, Alphington, Vic. 3087*

## BAIL WINDS DOWN

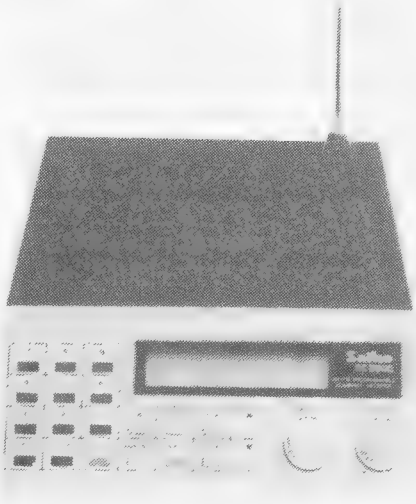
In early August the following note was received from Stan Roberts, Proprietor of Bail Electronics.

"Am rapidly winding down the activities of Bail Electronics and expect to close the shop in Wangaratta by about mid-August.

"Plan to maintain an interest in the Yaesu products which Bail Electronics have marketed and as far as possible will help former customers and owners of Yaesu products.

"However, I am retiring and in retirement I will not be providing an "on-call" service. I would prefer queries and requests to be made in writing to me care of PO Box 506, Wangaratta, Vic. 3677, but messages may be left on my home number of (057) 66 2359."

## SAIKO MOBILE SC7000 SCANNER



Captain Communications, Australia's leading scanner specialist, have just released the high performance Saiko SC7000 scanner. This scanner offers performance and facilities normally associated with much more expensive units.

Frequency range is unusually comprehensive, covering:

* HF band including CB band 26.000 to 30.000 MHz.
* VHF low band 68.000 to 88.000 MHz.
* Air band 118.000 to 138.000 MHz.
* VHF high band 138.000 to 178.000 MHz.
* UHF band 380.000 to 512.000 MHz.

There is a very comprehensive display show mode, channel, frequency and channel step. Search functions are very comprehensive and work in five, 12.5 or 25 kHz steps. Sensitivity is a high 0.5 uV, an excellent figure for a wide band scanner. Scanning can be through up to 50 memory channels. Delay function, channel blockout and priority channel are all provided.

Input/output facilities include 12 volts power, antenna and speaker.

For further information contact Captain Communications, 28 Parkes Street, Parramatta, NSW. 2150. Phone (02) 633 4333.

**G** — General
**C** — Constructional
**P** — Practical without Detailed Constructional Information
**T** — Theoretical
**N** — Of particular interest to the Novice
**X** — Computer Program

**RADIO COMMUNICATIONS — May 1988.** Thermoelectric Coolers. (G). Working with Operational Transconductance Amplifiers (OTAs) (G N). Digital IC Tester for the Commodore 64 (P X).

**QST — May 1988.** Pictures by Packet (G). Audio RFI (G N). Noise Bridges (G N). ARRL Financial Statement (G). PIN Diodes (G).

**CQ — May 1988.** Western Sahara Story (G). RFI and the Novice (G N). Packet Radio (G).

**73 MAGAZINE — May 1988.** Satellite Issue. (Satellites and the Future) (G). UoSATS and Britain (G). History of Project OSCAR (G). Hardline Connector (P). Winnebiko Solar Powered Hi-Tech Bicycle (G).

**HAM RADIO — June 1988.** A 10 GHz Microwave Station (P). Quad Antennas (T). Yagis versus Quad Antennas (T).

**CQ — July 1988.** The Western Sahara Story (G). The Tonschreiber (G). Semi-random Code Practice Program (X N).

**QST — June 1988.** Versatile Modem (C). New Phase 3C OSCAR (G). Digital Voice Message System (C). Low Cost Keyer (C).

**HAM RADIO — July 1988.** Annual VHF/UHF Issue. Six Metre Beam (P). Two metre Monitor (C). Low Cost Comb Generator Calibrator (P).

## MORE FOR LICENCE

The amateur station licence fee will rise $2 to $30 from December 1, 1988.

Radiocommunication licence fees will rise an average of six percent from that date also according to the Federal Budget.

***When inquiring about products you have seen in AR, don't forget to mention where you learned of the product!***

## IT SEEMS TO ME. . .

**(Author Unknown)**

It seems to me they are building staircases steeper than they used to

The risers are higher, or there are more of them, or something.

At any rate, it is getting harder to take two steps at a time

Nowadays it is all I can do to make one step at a time.

Another thing I've noticed is the small print they're using

Newspapers are getting further and further away when I hold them.

And I have to squint to make them out.

The other day I had to back halfway out of a telephone booth to read the number on the coin box.

It is ridiculous to suggest that a person of my age needs glasses.

But the only way I can find out what's going on is to have somebody read aloud to me.

This is not very satisfactory, because people speak in such a low voice these days that I can't hear them very well.

Everything seems farther away than it used to be.

It's twice as the distance from my home to the station now,

And, they've added a fair-sized hill that I never noticed before.

The trains leave sooner too, I've given up running for them because they start faster when I try to catch them.

They don't put the same material into clothes any more, either

All my suits have a tendency to shrink, especially around the waist or in the seat of the pants

The laces they put in shoes nowadays are much harder to reach

Even the weather is changing. It's getting colder in winter and the summers are hotter than they used to be.

I'd go away if it wasn't so far.

Wood is tougher when I try to chop it

Draughts are more severe too,

It must be the way they build windows now.

I got to thinking about all this while I was shaving this morning

I stopped for a moment, and looked at my reflection in the mirror

They don't seem to use the same kind of glass in mirrors anymore!

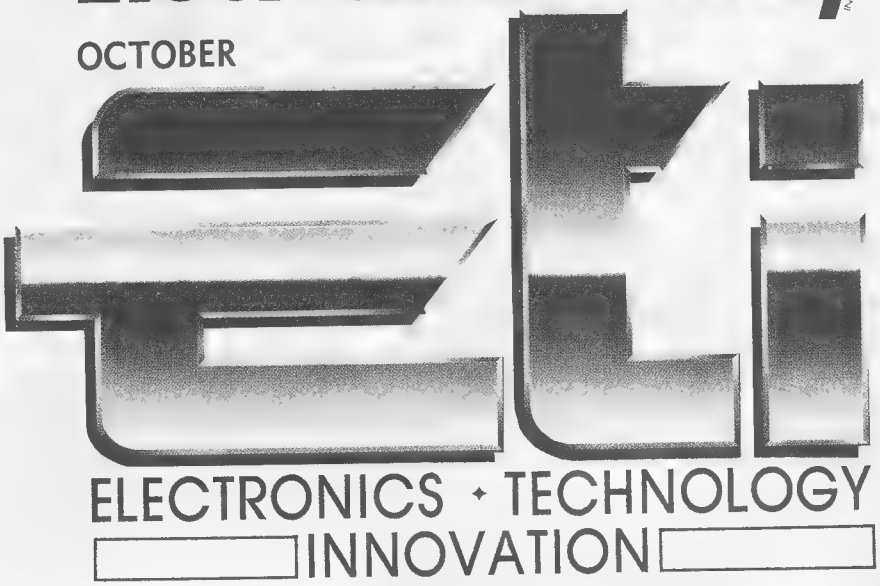
Contributed by Dennis Dedman, 464 Mount Dandenong Road, Kilsyth, Vic. 3137

OUT NOW!

At all good newsagents and book stalls

# Electronics Today INTERNATIONAL

OCTOBER

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## The Gulf Air Disaster

What really happened to 220 innocent victims of the Gulf War.

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ETI details the experiences endured during parabolic flight.

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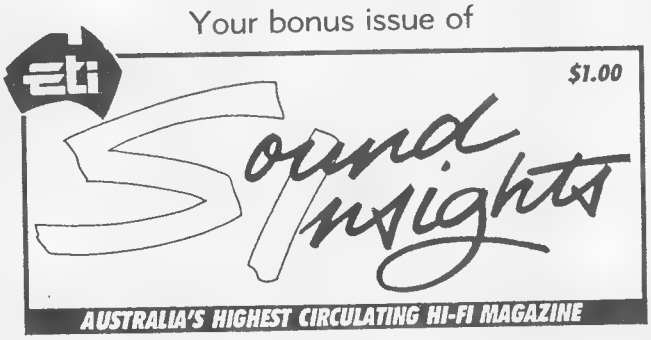



**Containing:**

Sound Ideas — Sound Advice — Sound Products

**IT DOESN'T COST — IT PAYS!**

*64 pages of glorious colour and a host of new-look articles*

# Club Corner

## TOWNSVILLE AMATEUR RADIO CLUB

From July 16-19, 1988, the Townsville Amateur Radio Club was involved in a display associated with the touring Australian Bicentennial Exhibition.

Whilst in Townsville, the Exhibition itself attracted a record number of local community club displays, and also record audiences. In our location not far from the main cinema tent, we were in just the right position to attract the crowds both coming and going. In fact, at times more than 50 persons were counted as they inspected out display.

For the four days and nights of the Exhibition, club members manned the display, answered questions, and operated under the special call sign, VI88QLD. Over 500 contacts were logged in the special log book over this period. The normal VK4WIT North Queensland News Broadcast, on Sunday evening, also originated from the display, and attracted much favourable comment.

The Exhibition staff assisted with the erection of the mast and antennas, which included a 10/15 metre beam (hand rotated), an 80 metre dipole, 80/40/20 metre vertical, and a two metre antenna.

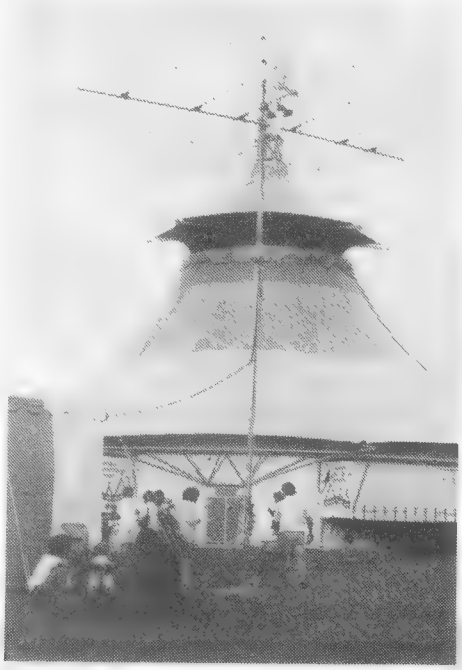
The display included many items of historic value, right through to modern aspects of operational equipment such as amateur television. In addition to the laminated posters already available in the club, the Mackay club also assisted by sending a large selection of poster to be used.

The item which caused the most comment, however, was an old Model 15 teletype, which was constantly in use except for the period when its motor produced copious amounts of smoke, and had to be rapidly replaced.

Hand-held radios were also used to co-ordinate the various aspects of the fireworks display.

Although the club has been involved with numerous displays over the years, this one was voted to be one of the best in terms of interaction with the public.

—Contributed by Peter Renton VK4PV, Publicity Officer, Townsville Amateur Radio Club

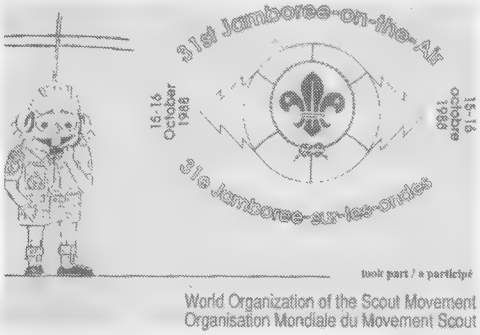


**Townsville Amateur Radio Club antennas against the backdrop of the main cinema tent at the Australian Bicentennial Exhibition.**

**Townsville Amateur Radio Club President, Evelyn Bahr VK4EQ, conducting the normal Sunday night VK4WIT North Queensland News Session in front of an appreciative audience at the Australian Bicentennial Exhibition.**

## THE SCOUT ASSOCIATION OF AUSTRALIA
## 31st JOTA
## October 15/16, 1988
## 0001 hours Saturday to 2359 hours Sunday, World-wide

The Australian Official Opening Broadcast will emanate from Government House, Canberra, on 7.090, 14.190 and 21.190 MHz over VK1BP at 0400 UTC, on the Saturday afternoon. This will be followed by a call-back of JOTA stations. I would be appreciated if these frequencies are kept clear from 0330 UTC for final checks.




In 1957, a Scout amateur radio was setup at the Jubilee Jamboree in Sutton Coldfield, England. The first Jamboree on the Air was held in May 1958. Interest has constantly increased. Now, each year some 300 000 participants in more than 100 countries make this event the largest "gathering" of Scouts and radio amateurs in the world.

Why don't you join in this year?

—Contributed by Peter Hughes VK6HU, JOTA National Co-ordinator

## BALLARAT AMATEUR RADIO GROUP

The Ballarat Amateur Radio Group will again hold its annual "Hamvention" '88 on Sunday, October 30, 1988.

Venue will be the Sebastapol Football Club Rooms at the Marty Busch recreation reserve, seven kilometres south of Ballarat on the Ballarat/Colac road.

This year's event will be similar to previous successful functions, with something for everyone. Also, a lucky registration prize, valued at $50.

The usual trade displays will again attract many exhibitors, along with a number of amateur events in the afternoon. There will be a home-brew competition, special auction of unwanted equipment (bring along your pre-loved junk for the auction!).

The usual barbeque lunch will be provided along with afternoon tea and free coffee on-tap all day. Admission for the day is $8 per person, children under 16 years free. Free Children's passes will be available to local tourist attractions when you register on Sunday. Make it a family day!

On Saturday evening, October 29, the club will host visitors to an informal counter tea at the Blue Bell Hotel, Howitt Street, Wendouree. Any visitors attending the counter tea should book their places with the person listed below as last year's tea was a sell-out.

The club can recommend motels or caravan parks, should you require overnight accommodation, and there is a motel opposite the Sunday venue, however bookings are always heavy, so book early.

Repeater Channel 3, and 3.600 MHz will be monitored during the day in case you get lost.

For further information contact Kevin Hughes VK3WN, on (053) 35 5011.

—Contributed by Kevin Hughes VK3WN, Hamvention '88 Convenor, Ballarat Amateur Radio Group

## NORTHERN CORRIDOR RADIO GROUP

The Northern Corridor Radio Group Hamfest will be held in the courtyard of the Carine College of TAFE on October 9, 1988, commencing at 9 am.

Anticipated features are:

Displays of amateur radio equipment by major retailers, electrical construction display, exhibition of various modes of amateur radio communication, the club station (VK6ANC) will be in operation using the special call sign VI88WA, and a white elephant stall.

It is hoped that funds raised at the Hamfest will enable the club to move into other areas of experimentation in amateur radio. The club currently operates the 28.264 MHz beacon on behalf of the WIA WA Repeater Group and rebroadcasts the VK6 WIA News on 7.075 MHz on Sunday mornings from 0130 to 0200 UTC.

For further information contact John Howlett VK6ATA on (09) 307 4407.

—Contributed by Frank Hampshire VK6KFH, Honorary Secretary, Northern Corridor Radio Group

## TAMWORTH RADIO CLUB

The Tamworth Radio Club will hold a Field Day on Sunday, October 30, 1988 at the Tamworth Racecourse, in Jewry Street, from 9 am to 5 pm.

Admission is free and there will be many and varied features including demonstrations of new equipment. Barbeque and refreshments will be available.

The club has only recently reformed and members are attempting to raise funds to promote a communications network in the north-west of New South Wales. The Field Day is the first official function of the new Tamworth Club so come along and help this day be a huge success.

—Contributed by Trent Sampson, PO Box 4, Tamworth, NSW. 2340

## CENTRAL COAST AMATEUR RADIO CLUB INC

All amateur radio operators, their families, friends and all interested in amateur radio are invited to attend the club's 32nd Annual Field Day on Sunday, February 19, 1988, at the Showground, Showground Road, Gosford, NSW.

Registration will cost, Gents $5, Ladies and Pensioners $3, Children under 15 $2. A special group concession will be available on application.

Companies, persons, groups, or clubs wishing to set up a table or display at the Field Day should contact the Central Coast Amateur Radio Club Inc at PO Box 252, Gosford, NSW. 2250, or telephone Bren Connolly VK2BJC on (043) 23 1662.

Start building now for the home-brew contest and the 70 centimetre home-made antenna evaluation.

Proposed program and other special attractions will be forthcoming at a later date.

—Contributed by Les Watsford VK2CLP, for the Gosford Field Day Committee

## NORTHERN CORRIDOR RADIO GROUP

Last years John Moyle Field Day site was good, but this year the group wanted something better. After checking contour maps, a field day reconnaissance party decided on a site at Gin Gin, some 60 kilometres north of Perth.

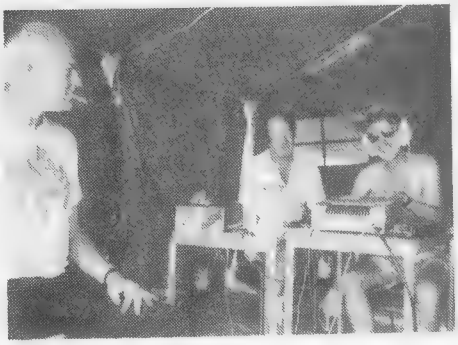
Permission was obtained to set up a station, and after work on the Friday, cars, trailers and a caravan headed along the great Northern Highway.

**Greg VK6NGM, 10 metre Station Operator and Log Keeper, Hawk an SWL.**

**The 10 metre station, two-element Delta beam.**

During the short time before sundown, beam antennas for 15 and 20 metres were made ready for the 24 hours ahead, then the party settled down to something to eat and drink. Jokes and unlikely stories about impossible situations were told, and even if the group had packed up and headed home next morning the trip would have been worthwhile.

**John VK6JX, checks the antenna.**



**The 20 metre shack. From right: Scotty W7SW (on loan), Gerald VK6YGH and Brian VK6BQN.**

On Saturday, UHF, 6 and 10 metres were put on air and operating commenced. The 40 degree heat, strong wind and sand made the day's effort hard and thirsty work. The group used the special call sign VI88WA.

Antennas for 40 and 80 were built on Saturday and although they performed well, few contacts were made on these bands due to VK/ZL activity. Why call VK6 for points when ZL was worth 20? The scoring in this part of the contest severely disadvantaged Western Australia and it was necessary to work DX CW stations to get any

**The VHF shack. From left: Tony VK6ZTL, Jack VK6KDX, Nevil VK6ZES, Hamish and Scott (SWLs).**

**The VK6ANC/VI88WA team. Back from left: Hawk SWL, Greg VK6NGM, Tom VK6ATL, Ray SWL, Nick VK6JMS, Ian VK6ZIC, John VK6JX, Phil VK6ZPP, Tony VK6ZTL, Peter VK6PK, Nevil VK6ZES.**
**Front: SWL, SWL, Hamish SWL, Jack VK6KDX, Alex VK6APK, Scott SWL, Scotty W7SW, John VK6ATA and Frank VK6KFH.**

points. Let's hope for a fairer points system next year when the group will be back to enjoy another great weekend.

—Contributed by John Howlett VK6ATA

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## MOORABBIN AND DISTRICT RADIO CLUB

The Moorabbin and District Radio Club operated in the John Moyle Memorial Field Day Contest from the Mount Martha Scout Reserve.

—Contributed by Ken Gott VK3AJU, President, Moorabbin and District Radio Club. Photographs by Max Meallin VK3ATK

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**Doug VK3CCY, organiser of the operation and club secretary.**

**Philip VK3KPK, operating on VHF.**

**The Moorabbin Operating Site.**

## QSP

### SIX-METRES IN QUEENSLAND

*Following is a letter from DOTC outlining operating conditions applying to the use, by the amateur service, of the 50 to 52 MHz band in Queensland.*

At present commercial television station ATQ-0 situated at Mount Coot-tha, Brisbane operates on Channel 0. However, during September — October 1988 this will be changed to Channel 10. The change will be achieved by swapping operating channels with DDQ-10 Darling Downs. The existing Channel 0 being transferred to Darling Downs located near Toowoomba.

This change does not alter the existing restriction that amateur stations may only operate in the 50-52 MHz band outside the hours of operation of any Channel 0 station.

—Contributed by Mr A Jordan, A/g Manager Regulatory, Radiocommunications Operations Branch, Communications Operations Division, DOTC

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# WICEN News

## POLICE CHIEF PRAISES WICEN

**"Very high standards . . . a reputation for professionalism, reliability and co-operation within the emergency services."**

That was how Victoria's Chief Commissioner of Police, Kelvin Glare, described the Wireless Institute Civil Emergency Network (WICEN) in the preface of the new WICEN Victoria operator's handbook, WICEN Procedures and Techniques Handbook.

The full text follows:

The State of Victoria is dependent on its volunteer organisations to provide their various areas of expertise in times of emergency.

In the relatively short history of this State, we have been involved in a number of emergencies of varying descriptions and degrees of severity, the most common being the bushfire.

History has shown that on each occasion, the volunteer organisations have performed with great efficiency and co-operation whilst working side by side with the full time, paid Emergency Service workers.

Throughout the years, WICEN members have established a reputation for professionalism, reliability and co-operation within the emergency services and it is hoped that the very high standards previously attained by its members, will continue to be maintained.

The success of combatting any emergency situation relies on complete co-operation between all organisations involved, and while the community looks to Police to take the initiative in times of emergency, the restoration of order from chaos can only be achieved with the assistance and co-operation of agencies like WICEN.

WICEN members are part of the community and as such they have accepted a collective responsibility to participate in efforts to assist in the combat of and recovery from emergencies. It is this attitude of co-operation and community self-help which exemplifies the spirit of the State Disaster Response Plan.

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IAN J TRUSCOTT'S

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— SEND SASE FOR DATA

* REFERENCE & DATA BOOKS FROM MOTOROLA, SAMS, NATIONAL SEMICONDUCTOR, RSGB & ARRL
* ELECTRONIC KITS (incl DREW DIAMOND'S PROJECTS)
* RANGE OF **MURATA CERAMIC FILTERS & RESONATORS**

# Forward Bias

**Norm Gomm VK1GN**
*GPO Box 600, Canberra, ACT. 2601*

## DIVISIONAL PARTS BOX

The Divisional Parts Box, under the care of Neil VK1KNP, is operational, but we still need suggestions for items to stock.

## MONTHLY MEETINGS

The July meeting of the Division saw Neil VK1KNP, talking about AUSSAT and space communications. Neil's presentation included a practical demonstration of the satellite's capability.

Neil gave an excellent demonstration of problems in trying to line up with a satellite, particularly in trying to work through trees. Some cruel people suggested this particular demonstration was not planned. I think the things that impressed most members were the effect of polarity on signal strength and spatial separation, and the quality of the BMAC system compared with PAL. Congratulations to Neil for a top class presentation.

Future meeting dates are:

October 24
November 28

At the time of writing, no program had been set for the October meeting. The November meeting will be the end of year social event including an opportunity to swap, sell and buy pre-loved equipment.

Remember, Hank VK1HZ, is still looking for those new and innovative topics. So, any suggestions will be gratefully received. Hank would prefer topics that have a strong amateur radio flavour.

## PACKET ACTIVITIES

The ACT Packet Group normally meets on the first Thursday of each month, but this is subject to variation. Details of venues and dates are beaconed by Richard VK1UE, about one week before a meeting.

Details on the ACT Packet Group activities can be obtained from Carl VK1KCM, by telephoning (062) 89 7819 (work) or (062) 58 3921 (home).

## JOHN MOYLE FIELD DAY 1989

The John Moyle Field Day usually takes place in March each year. Now is the time to start planning ahead, given the Christmas break and certain administrative requirements.

If you have any suggestions, wish to participate, or help with its organisation, please contact me, Norm VK1GN on 54 8512 at home.

**CPO Ken Jone climbing the tower of one of the 3-30 MHz log periodic antennas.**

## VISIT TO THE NAVY'S RADIO STATION AT BELCONNEN

On August 6, 1988, Hank VK1HZ, led eight Canberra amateurs and one YL on a visit to the Navy's Radio Station at Belconnen. For those of you not fortunate enough to live in sunny Canberra, Belconnen is a northern suburb of this fair city.

The most prominent feature of the station is a very large HF antenna, consisting of three masts of approximately 100 metres height and separated by a similar amount. Contrary to popular opinion, it is not a dipole but a top loaded vertical. The loading is achieved with a capacitance hat of wire strung between the two outside masts. Just to whet an amateurs appetite, there are another 48 HF antennas on mere 30 metre masts — some antenna farm!

Our intrepid nine toured the historic transmitting station and the extensive antenna farm under the guidance of Commodore Tony Dinetta, ably assisted by the Station's Senior Technical Officer, Mr Ken Felthall. According to Hank, the Navy "bent over backwards" to make the visit memorable. According to those who went, the visit was summed up in one word — *fantastic! ! !*

**From left: Karl VK1KCM, David VK1ZDT, George VK1GB, Neil VK1KNP, George's wife, Frank VK1FA, Stirling VK1ZDJ, Barry VK1ABR, Hank VK1HZ and Commodore Tony Dinetta.**

## VI88ACT

At the time of going to press, VI88ACT has worked over 3000 stations and 481 prefixes. Details of the bands and modes worked are given in the following tables.

| 80m | 40m | 20m | 17m | 15m | 12m | 10m | 6m | 2M |
|---|---|---|---|---|---|---|---|---|
| 542 | 641 | 1113 | 1 | 585 | 75 | 204 | 3 | 20 |

MODES USED:

| CW | SSB | AM | FM | PKT | AMT | RTT |
|---|---|---|---|---|---|---|
| 338 | 2737 | 0 | 13 | 7 | 10 | 68 |

So far 23 operators have used this call sign. The most active is VK1ZL, closely followed by VK1PJ. Operation from Parliament House on its opening day drew some 439 QSOs. A great effort by all involved, but special acknowledgments to Phil VK1PJ and Dan VK1ST, for their tireless efforts in co-ordinating the station and arranging QSL cards. For those who have not worked VI88ACT, there is an excellent multicoloured QSL card available showing an amateur beam superimposed over Parliament House.

### REPEATERS

Both UHF repeaters are suffering from interference problems.

VK1RIR's problems have been identified, but at this stage, a cure is not readily available. The source of the interference affecting VK1RGI is yet to be identified and, due to access difficulties, it may be some time before this problem can be tackled.

In summary, it is going to be some time before these problems can be solved — so please bear with us.

### ESANDA AUSTRALIAN CAR RALLY

On the weekend of August 13/14, 1988, the VK1 Division provided safety and administrative communications for the ESANDA Australian Car Rally. The organisers were very appreciative of the Division's efforts and stated that it made an important contribution to the safe and efficient running of the activity. Those who contributed are too numerous to name, but special thanks must go to Ken VK1KEN, who had the task of organising the Division's efforts.

### VK1 CLASSES FOR FULL AND LICENCE CALLS

On behalf of the Division, Ian VK1IF, runs consecutive courses for Novices and Full Calls. The Novice series has now finished and the Full Call classes are underway. Each class starts with 30 minutes of the dreaded Morse code, followed by two hours of theory.

The classes are held each Tuesday in Room 3 of the Griffen Centre and are run on an informal basis to suit student needs.

Even though the course is underway, additional students, particularly Novices wishing to upgrade, are welcome. Also, Ian would like to have any suggestions for running next year's courses. If you have any ideas, please call him on 51 3640 at home.

## MURPHY'S CORNER
## Corrections to Schematic of VHF AMTOR/RTTY/PACKET MODEM (AR JULY 1988) by Ron Mills VK5XW

1. The 12 volt to pins 6 and 7 of the XR2211 should go via a 10k resistor, not direct as shown on the schematic.
2. From the centre terminal of the TTL OUT switch (Norm/Rev) there should be a 4k7 resistor to the base of the BC548 transistor instead of a direct connection.
3. If there is a problem in setting the XR2211 to 1700 Hz for Packet, change the value of the 2k potentiometer from pin 12 to 5k, or add series resistance.
4. See Figure 1 for the correct wiring around pins 1, 2, 3 and 4 of the XR2206. This was really messed up!
5. Ron apologises to anyone who tried to build this normally placid and reliable modem and couldn't spot his drafting mistakes.

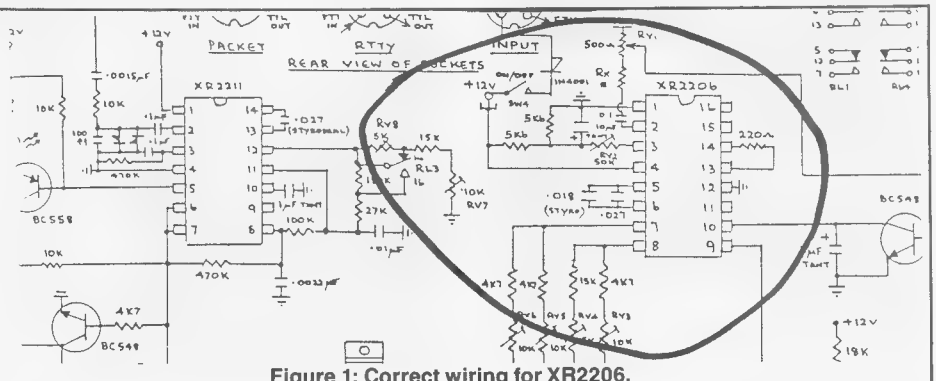



**Figure 1: Correct wiring for XR2206.**

# VK2 Mini-Bulletin

**Tim Mills VK2ZTM**
*VK2 MINI BULLETIN EDITOR*
*Box 1066, Parramatta, NSW. 2150*

### FORUMS

The VK2 Division has been holding several successful forums this year. Before the year is out it is hoped to hold one on satellites and another IPS presentation. The broadcasts will advise further information. By this time, the TVI kit based on the lecture given by Ron VK2DQ, should be ready for members to borrow.

Don't forget the video tape library at Parramatta. If you are short of a lecturer for a monthly meeting or you live remote for a radio club, you can borrow a copy — VHS format.

### FIELD DAYS

The Tamworth ARC advise that they will be holding a Sunday event at the Tamworth racecourse on October 30. Contact via PO Box 4, Tamworth, NSW. 2340 or phone (067) 66 6906.

The following weekend the Wagga ARC will be holding their field day on Saturday, and Sunday, November 5 and 6. Contact via PO Box 294, Wagga, Wagga, NSW. 2650 or phone (069) 22 6973.

### CONFERENCE OF CLUBS

This will be hosted by Illawarra ARS in early November at Wollongong. The agenda has now closed and clubs should check their monthly posting for details.

### JOTA

This will be over the weekend October 15-16. AX2WI will retransmit the opening address at 2 pm, on Saturday if the originating signal is good enough. Have you arranged with your local Scout group to help?

### POSTCODE CONTEST

Friday, October 28, between 9 and 11 pm on the 70 centimetre band. The next Trash and Treasure will be Sunday afternoon, November 27.

### VK2AWI

A station is being set up at Amateur Radio House for visitors and public demonstrations. With the closure of the Powerhouse Museum station there is no place, other than Dural, that the public can see amateur radio.

### VI88NSW

The next major operation will be the Parramatta Bicentenary Award throughout November. Work the station at several of the Historic Sites for the Award. Also, some operators are still required so contact the co-ordinator, Aub VK2AXT, via the Parramatta Office, from 11 am to 1 pm weekdays on (02) 689 2417, on Wednesday 7 to 9 pm.

### DIVISIONAL BOOKSHOP

New stocks keep arriving and these are advised via the AX2WI broadcasts. Are you interested in either the 1989 ARRL Handbook or the US or Foreign Call Books? They will cost about $50 each. Advance orders will be taken up to October 14. Delivery would be early next year. A current book list may be collected from the office or send in a 9 x 4 sized stamped envelope to PO Box 1066, Parramatta, NSW. 2150.

### MORSE CODE

First, please keep the 80 metre frequency of 3.550 MHz clear in the early evening to allow those wishing to join the ranks of amateur radio every chance to learn the code. There is also the continuous transmission of VK2RCW, on 3.699 MHz and 144.950 MHz (Sydney).

Morse code, it would seem, is not a dying art. Council has received requests recently to possibly introduce awards for Morse proficiency as well as a high speed Morse broadcast at, say 25 words per minute. Council seeks reaction to these suggestions.

### BROADCASTS

A reminder that, with the daylight saving changes this month, that AX2WI follows local time and remains with the technical tape starting at 1045 and 1915 hours and the news content following at 1100 and 1930. Most of the news content may also be found on the VK2RWI Bulletin Board on 4850 and, in turn relayed to other systems. The Slow Morse VK2BWI on 3.550 MHz and ANARTS RTTY News from VK2TTY, follow UTC time and move an hour local time. There is also the telephone news service on (02) 651 1489.

### NEW MEMBERS

A warm welcome is extended to the following who were in the August intake.

| | |
|---|---|
| J R Berthelot VK2FAH | Neutral Bay |
| M J Farrell VK2FLR | Glebe Point |
| G D Frith VK2FKN | Lindfield |
| R M Gilchrist VK2CCM | Manly |
| P J Godden VK2XPJ | Coffs Harbour |
| G J Greenwood VK2ZIS | Sydney |
| E D W Kidd Assoc | Dubbo |
| K P McCabe VK2PMK | Grays Point |
| J M McLoughlan Assoc | Dundas |
| A J Smith VK2XFX | Leura |
| C T Theng Assoc | North Wollongong |

# VK3 WIA Notes

**WIA VICTORIAN DIVISION**
*412 Brunswick Street, Fitzroy, Vic. 3065*

This month we will deal in detail with the WIA membership fees set by the VK3 Divisional Council for 1989.

Tight financial and budgetary controls of the Division's finances will most likely see to the end of the year financial statements again in the black.

It has been a difficult year with rising costs in all main areas including power, postage, printing, phone, licence fees and general expenses.

Firstly, it is necessary to appreciate that your WIA membership fee is made up of several parts — basically a Federal component and Divisional component — as shown by the following pie charts.

The WIA Federal component (AR magazine, Federal Office, and IARU) has increased $3 per member for 1989.

The Divisional component is the basic source of revenue for the Victorian Division to fund its activities including membership services.

Due to its economic performance in 1988, the Division has been able to absorb $2 of the Federal component rise for the majority of members (Full Grade). The total cost of this absorption is estimated to be around $3 000.

But, because the Divisional component of the other membership grade is low, there was no option other than to pass on the Federal component rise in full.

After considerable deliberation, your elected Council set a new scale of fees for 1989 (see Table).

This has resulted in an average increase in membership fees of 6.4 percent — which favourably compares with the inflation rate.

Australia's current inflation level is 7.1 percent and bank economists recently predicted it would be 5.9 percent in the 1988-89 year.

## MEMBERSHIP FEE BREAKDOWN

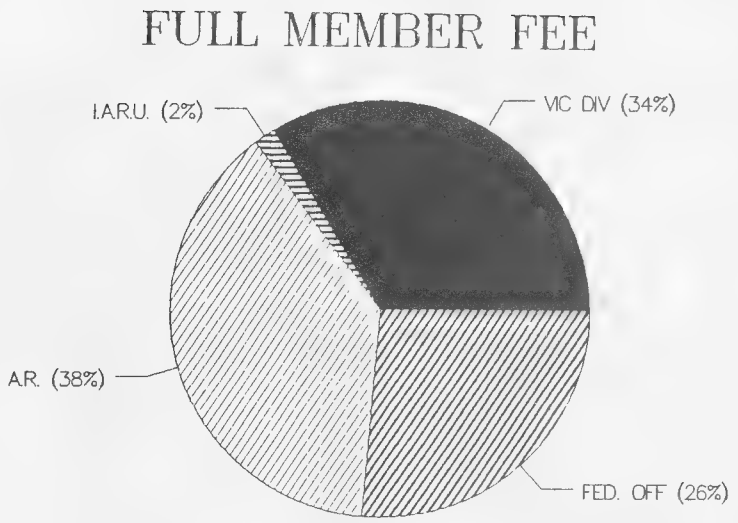
| MEMBERSHIP GRADE | AR MAGAZINE | FEDERAL OFFICE | IARU |
|---|---|---|---|
| Full | $19.14 | $13.11 | $0.75 |
| Assoc | $19.14 | $13.11 | $0.75 |
| Pensioner | $19.14 | $13.11 | $0.75 |
| Student | $19.14 | | $0.75 |
| Family | | $13.11 | $0.75 |

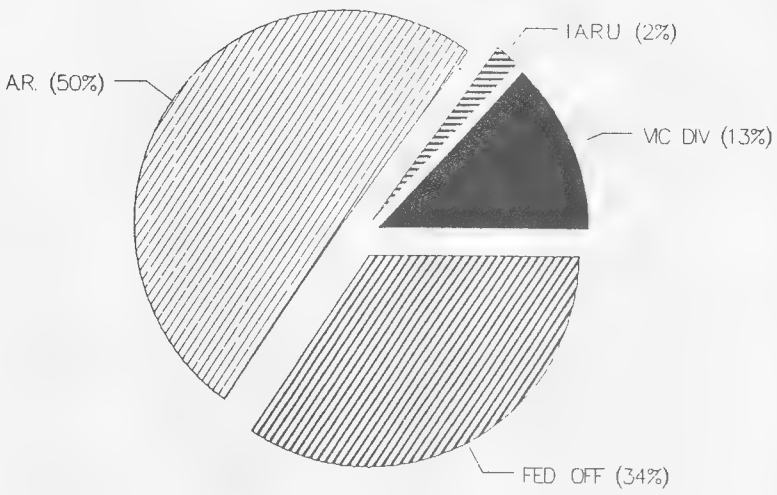
| MEMBERSHIP GRADE | VIC DIV | TOTAL FEDERAL | TOTAL 1989 FEE |
|---|---|---|---|
| Full | $17.00 | $33.00 | $50.00 |
| Assoc | $12.00 | $33.00 | $45.00 |
| Pensioner | $ 5.00 | $33.00 | $38.00 |
| Student | $ 7.11 | $19.89 | $27.00 |
| Family | $13.14 | $13.86 | $27.00 |

## NEW MEMBERS

The following applications were received for the months of June and July, 1988, and were accepted by Council on July 28, 1988.

Donald Anderson VK3VJP*
Reg Barker VK3NGY*
Dennis Bates VK3MBV
Fred Behrens VK3MAV*
Murray Bird VK3PBA*
Andrew Bourke VK3PGK*
William Callahan VK3VCR*
Kerry Clayton VK3KFC
Kevin Cocks VK3NPC*
Kenneth Codlin VK3VRE*
Peter Collen VK3ZTZ
Russell Davenport VK3ERJ*
David Davies VK3NDJ*
James Day VK3ZDG
Dennis Dedman




Phillip De Valle VK3PGP*
Jeffrey Gater VK3AM
Leonard Gibson VKNPG*
John Gordon VK3NUX*
Kenneth Gray VK3KEN
Bernard Gregory VK3TCR
Daryl Hooke VK3NEX*
Paul McClure VK3VBV*
Christopher McLaughlin VK3CHR*
Ronald Maskell VK3VYG*
Kingsley Meres VK3TKM
Mervyn Millward
Frederick Morris VK3VFJ*
Donald Musgrove VK3PKO*
Donald Negus VK3CDN/WD0FQA
Lynton Perry VK3MIV*
John Powell VK3YFG
Gregory Rice VK3VRU
Jeanette Rice VK3VKU
Reginald Riglar VK3NZH*
Fabian Suleau VK3MBP
Rodney Trevor VK3XOK
Anthony Verberne VK3PGU*
Eric Waterman VK3MBR
Barry Watkins VK3TCX

* Joined on a pink "Invitation to Join" form.

Membership costs less than $1 per week. This is real value for money in terms of services provided and representation of your hobby at a local, national and international level.

# Five-Eighth Wave

**Jennifer Warrington VK5ANW**
*59 Albert Street, Clarence Gardens, SA. 5039*

## CONGRATULATIONS

The 'stork' was working overtime during the months of June and July, here in VK5. Harmonics were delivered to the QTHs of Ben VK5ABE, Mitch VK5AZM, and Glen VK5ZCF. Our congratulations to them and their respective partners.

Congratulations were also in order to George Luxon VK5RX, who celebrated his 80th birthday and his 59th wedding anniversary to Thelma.

## NEW HISTORIAN

It is just as well that I was sitting down when Clarry Castle VK5KL, came up and asked at the July meeting if we were still looking for an historian, or I might have 'keeled over' with the shock. We were, and Clarry volunteered to take over the position from his 'old mate' Ray Bennett who had been wanting to hand it over for some time. Our thanks to Clarry for offering to take on the task.

## SILENT KEYS

It is with deep regret that we announce the passing of two of our older members. Jack Dew VK5KX, who was first licenced in 1959, passed away on July 23, as the result of a heart attack. Our sympathies are extended to his widow and son Rob VK1VE. Our Buy and Sell nights won't be the same without Jack.

Roy Dennett (the former VK5IV) who was probably better known to the Old Timers, passed away in August at the age of 93. If you think the call sign sounds familiar, you're right! The current holder of the call sign is Kevin May, our hard-working Broadcast Officer.

## TUESDAY, OCTOBER 25:

Mark Spooner VK5AVQ, will talk on his two recent trips to the Antarctic and show slides. 7.45 pm.

Listen to the Broadcast for dates and venues for the Picnic and the Old Timers' Luncheon, Both of which are usually held in November.

# WA Bulletin

**John Sparkes VK6JX**
*VK6 PUBLICITY OFFICER*
*83 Anemone Way, Mullaloo, WA. 6025*

The VK6 Divisional Council believes it is about time to take advantage of the column available to it in the WIA journal.

It has elected me as the Divisional Publicity Officer, with a brief to bring a report each month or as often as time permits.

To make things easy on the first attempt, I will write about something that is familiar to me.

We have quite a few amateur radio groups in this State, and one is the Northern Corridor Radio Group (NCRG).

Shortly after its foundation, this group was featured in AR magazine's Club Corner (see February 1986).

The WIA-affiliated NCRG meets on the second and fourth Tuesday of each month at Carine Technical College, 14 kilometres north-west of Perth City.

The college has provided excellent support to the group. Courses in amateur radio are conducted at the college by Wayne VK6WD.

The group has 40 members ranging in age from 14 to 80 years. Lectures are encouraged at meetings. A recent presentation on receiver performance and dynamics by Cy VK6IK, of the Hills Amateur Radio Group, was very well received. Long live valve receivers!

NCRG has a decided bent for contests, and participates regularly in the RD, Field Day, VK/ZL and Novice contests for the HF championship.

Many other major contests, such as the CQ WW receives logs from NCRG.

For most of this Bicentenary Year, the NCRG has been airing the VI88WA call sign. Hundreds of operators in many countries have been worked using our commemorative call sign.

The group's equipment consists of an FT-301D, home-brew 813 linear amplifier, and a Cushcraft A4 Yagi with 40 metre band extensions on a 17 metre tower.

The rotator is a bullet proof prop-pitch motor with Selsyn direction indicator. An enthusiastic bunch of NCRG members have set up the club station, VK6ANC.

The Division's Sunday Broadcast is now relayed on 40 metres by VK6ANC, at 0130 UTC on 7.075 MHz.

A Hamfest will be held on October 9, at the Carine College. The club station is to be operational for public display. One of the activities is a home-brew competition with section prizes.

Local agents of amateur radio equipment will be on hand to display and sell their wares — why not drop in to the NCRG Hamfest on October 9?

Watch for the next installment of happenings in the WIA VK6 Division.

**John Rogers VK7JK**
*VK7 BROADCAST OFFICER*
*1 Darville Court, Blackman's Bay, Hobart, Tas. 7052*

## HAMFEST FOR TASMANIA

The 1988 Hamfest will be held as near to Tasmania Day as possible, that is on Saturday, 29 and Sunday 30, October.

The Hamfest activities will run all day on Saturday from 9 am and on Sunday morning from 9 am.

The main venue will be the Southern Activity Centre at 105 Newtown Road, Hobart. At the centre there will be a series of displays depicting various aspects of amateur radio operations — satellites, packet radio, RTTY, standard HF, VHF and UHF communication practices, a Branch store and sale table, mobile clinic (bring in *your* equipment for testing!), and a complete range of social activities, with food and liquid refreshment, and plenty of *chat*.

There will also be some demonstrations and constructional activities, antenna building, adjusting and testing and a display of vintage equipment from the VK7ML collection.

The broadcast of October 30, from VK7WI, will take place from the Hamfest, and you will have the opportunity to see the system in use, what is involved in getting the broadcast to air and you can give your ideas of how the broadcast could further be improved.

The whole Hamfest is to be a get-together for all Tasmanian amateurs and visitors to swap ideas, find out about other facets of out hobby, and join in the technical, as well as social side of the weekend's program.

A BYO barbeque will be set up and refreshments will be available throughout the day. Members of the public are most welcome to visit the displays, so please spread the news, bring the family and friends and enjoy the day.

The ever-popular Sewing Circle Barbeque will be held on the Sunday afternoon to augment the festivities. Visitors from across the State will be able to take part in the Hamfest *and* enjoy the Sewing Circle without having to make two round trips and they will be made very welcome.

All VK7s are asked to listen to the VK7WI Sunday Morning Broadcasts during the month for further details on the Hamfest, so that there is plenty of support to make it an occasion to remember. There may be a special function on the Saturday evening, so keep the date free — we'd hate you to miss out!

**Come to what we expect to be a real Old-Fashioned Field Day!**

## BRANCH MEETINGS

Northern — October 14, 7.30 pm.
North-Western — October 11, 7.45 pm.
Southern — October 5, 8.15 pm.

*Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.*

# Over to You!

## LICENCE STRUCTURE

I refer to the Future of Amateur Radio Working Party recommendation 10 outlining the preferred new licence structure, published in July *Amateur Radio* magazine, page 26. Sadly, I cannot agree with the majority of the contents of this proposal.

The structure of the amateur licensing system, as administered by the Department of Transport and Communications (DOTC) was not planned, rather evolved. It is quite a hotch-potch of add-ons, extensions and patches. The proposal seeks, once again, to modify the present licensing system.

I believe that the licensing system should be completely scrapped and restructured from the ground up. It should exhibit the characteristics of forward thinking and careful planning.

DESIRED SYSTEM

A new system should seek to:

a) examine a candidate on the modes and frequencies the candidate wishes to use

b) encourage the licensee to upgrade

c) encourage new members into the hobby

d) rename all levels or classes so as not to associate a reviewed system with the present structure

e) be simple and straightforward.

A system which may suit is outlined below.

| TITLE | THEORY EXAM | MODES | BANDS | POWER |
|---|---|---|---|---|
| Level 1 | Satellite, EME, Microwave, ATV, SSTV, FAX, Video UHF/VHF Antennas, Prop | All | All | High |
| Level 2 | Transmit, Receive, Electronics Data (CW, RTTY, PACKET, AMTOR) AM, SSB, FM, A/FSK, PSK | Data AM SSB CW FM | Lower 50 % All | High |
| Level 3 | Batteries, Radio Connections Fuses, Antennas, VHF/UHF Prop Regulations | AM SSB CW FM | Upper 50 % VHF/UHF | Low |

COMMENTS

Morse Code

No Morse examination is proposed. It is an operating skill and should be included with other operating skills such as typing or loading a transmitter into an aerial. The Future of Amateur Radio Working Party particularly recommended that *no* practical test be included as part of a licence restructure (Paper 4, AR December 1987, page 19, first paragraph).

CW as a mode will always be available. However, trends indicate that it will not necessarily be examined in the future. Therefore, it is appropriate that it is considered now as an exclusion to any new licence examinations.

Bands

Lower 50 percent All refers to the licensee's entitlement to operate in the lowest half of all bands. For example, 14.000 MHz to 14.177.5 MHz is the lower 50 percent of the full 14.000 MHz to 14.350 MHz 20-metre band.

Level 2 licensees naturally enjoy the privileges of Level 3, this entitling them to full VHF and UHF band operations.

Similarly, Upper 50 percent VHF/UHF refers to the licensee's entitlement to operate in the upper portion of all VHF and UHF bands. For example, 146 MHz to 148 MHz is the upper portion of the 144 MHz to 148 MHz band.

Level 3

This level is the basic introduction into amateur radio with an elementary theory examination and including the DOTC regulations examination.

Level 2

Level 2 examinations are structured to assess the candidate's knowledge in radio and electronic theory suited to this level. Included are voice and data modes, HF and VHF/UHF techniques and propagation.

RTTY, AMTOR, Packet and CW are bracketed as data modes of communication and are specifically examined.

Level 3 privileges are completely contained within Level 2.

Level 1

The examinations on this level are structured to test the candidate's knowledge in some of the specialised modes of communication. These include TV, FAX, Video, EME, Digital Electronics, Satellite, SHF and Microwave Techniques, antennas and propagation.

Level 3 and 2 privileges are again completely contained within Level 1.

CONVERSION

Conversion for present licence holders would be as follows:

AOCP (full) and AOLCP (limited) — Level 1.

NAOCP (novice) — Level 2.

All candidates holding passes in some subjects associated with the present licensing may choose wither to complete the remaining subjects or qualify or sit for the appropriate new examination level.

CONCLUSION

Any new amateur licensing system must be simple, suitable and capable of successfully carrying amateur radio well into the 21st century.

A carefully restructured system, such as the one outlined above, can only assist in providing a sound foundation for the real Future of Amateur Radio!

Regards.

**Will Scott VK4XP**
**PO Box 826**
**Gladstone, Qld. 4680**

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## VHF MODEM FOR RTTY, AMTOR AND PACKET — ADDENDUM

Since submitting the article on a VHF RTTY/AMTOR/Packet modem, which was published in *Amateur Radio,* July 1988, difficulties with regard to interfacing the modem with the Digicom›64 program have been encountered with late model Commodore C64Cs. I had not intended publishing any specific interface connections at first, but as Digicom›64 V1 and V2 are becoming very popular (public domain) I included, almost as an after thought, the C64 cassette port connections for Digicom›64.

The simple interface shown on page 15 of July AR worked quite okay until the later model C64Cs arrived. They have serial numbers commencing around HB4 300,000 plus. The model can be readily identified by looking into the rear cassette and user ports. If you can see a row of disc ceramic capacitors immediately at the rear of the port contacts, then the TTL out from the C64C to the modem will not work properly (you cannot connect to anyone but reception is not affected). From cassette port pins 2 and 3 there have been fitted 0.1 uF and pins 4, 5 and 6 470 pF disc ceramic capacitors to ground. The TTL out from the junction of the resistive network between cassette port contacts 1 and 3 (2k2 and 4k7 ohms) no longer is effective due to the 0.1 uF now fitted to pin 3 of this C64C. All of this model C64C that I have seen have had a seal affixed to the centre screw hole underneath the computer preventing the removal of this offending capacitor without voiding the three-month warranty. (Most of the computers affected are of very recent origin so will be still under warranty). The lifting of this 0.1 uF capacitor probably would solve the problem if you don't mind losing your warranty.

One method of overcoming this problem is to substitute the 2k2/4k7 resistive network with a 5k tab potenticmeter and adjust its value until you can connect okay with other packet stations. This is not really a good solution. I have found that by removing the resistive network altogether and replacing it with an opto-coupler, eg a 4N28 and two resistors, a reliable solution can be found that works with any model of C64 computer. The 470 pF capacitors fitted to the other cassette port pins do not seem to affect the reception in any way.

The suggested circuit is in Figure 1. It would, in most cases, be more convenient to fit the components inside the modem rather than at the cassette plug.

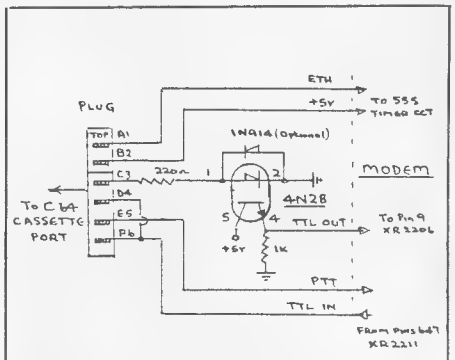


**Figure 1: Wiring from the C64 to Packet AX25 Modem using Digicom›64 Software.**

Hoping that this is of help to those who are using the Packet program Digicom›64 with a nice new Commodore C64C computer and are wondering why their system will not work.

73,

**Ron Mills VK5XW**
**13 Taylor Terrace**
**Rosslyn Park, SA. 5072**

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## A "DELTA QUAD" IS THE SAME AS A "SQUARE TRIANGLE"

The VK2JMG/VK2MUZ article published in the March issue was very interesting and well presented. I would, however, wish to point out one aspect of incorrect terminology which was contained in the article and which has shown a tendency to creep into our amateur language.

In the article, the term "Delta Quad" was used about nine times. This terminology is incorrect, and I am afraid grated with me each time I read it. Elsewhere in the article the word "quad" was

freely used in such a way that again the usage was inappropriate.

A quad in the context of antennas usually refers to a "four-sided" element. A "Cubical Quad" is an antenna made up of *two* such elements. (A cube being a figure contained by six equal squares).

In view of this, there can be *no* such things as Delta Quads or even three of four element *cubical* quads. (Maybe a four-element is a "Double Cubicle Quad!").

The cubical quad antenna, and its various configurations, is known as a boon to the hobby of amateur radio. It is an extremely useful antenna for many reasons.

The main contribution such an antenna has made to the hobby is that "it is the greatest QRM reducing antenna ever devised and used on the amateur bands".

My understanding is that the quad element was first utilised by engineers at the broadcast station HCJB which was located high in the Andes and ran at considerable power. The element was devised to overcome the problems of corona at the ends of straight elements. This effect was such in the rarefied atmosphere of the mountains that the ends of the elements used to melt off. (The amateur operator to whom this may occur could be suspected of running higher power than legally allowed).

Incidentally, the explanation of the statement regarding the QRM reducing capabilities of the cubical quad is that "at any given time 60 percent of all the cubical quad antennas in the world are *on the ground.*"

Whilst said in joke, the foregoing sentence contains some grain of truth.

Many operators come on the air with fairly simple antenna systems then soon find out that a beam antenna is most desirable.

In many cases they do not, at first, wish to spend large sums (for various reasons) in building antennas. Thus, they look around for effective and cheap solutions.

The cubical quad often seems to fit the bill. Just some wire, a few crossed sticks and lo and behold they have a cubical quad antenna.

Unfortunately, the approach described is just that so often adopted and with a cheap approach, the results can be seen even after fairly minor wind gusts. Thus the cubical quad earns a name for mechanical problems not rightly deserved.

A properly designed and constructed antenna of this type can survive very heavy weather and may also have quite a number of other desirable attributes.

For myself, I have never used a cubical quad antenna and it is quite probable that I never will. I just don't like the look of them.

I trust that this letter will serve a few purposes such as education, amusement and also promote discussion.

Yours faithfully,

**Ian Hunt VK5QX**
**8 Dexter Drive**
**Salisbury East, SA. 5109**

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## NEED FOR CW

To those who are disdainful about, and decry the use of, CW in communications, think again before you put forward unsubstantiated arguments in seeking its withdrawal. You are denigrating fellow members and many ex-service personnel who handled Morse efficiently under most trying combat and geographical conditions. Your attitude reflects negatively upon your own experience, general knowledge and valued call sign. This can be off-putting to recruitment of new blood to the amateur ranks.

Yes, I know only too well that this is a democracy and you have every right to express your opinion, but for goodness sake research your subject constructively.

I am convinced that Morse code is vital, up to the present time and possibly into the immediate future for the following reasons:

a) It will cut through atmospherics far more efficiently than "voice". Invaluable in receiving weaker signals that would be rendered unreadable despite refinements such as crystal gates, crash filters, selectivity slope tuning and sundry other resorts to arrive at an intelligible signal.

b) A rougher note can be introduced to shatter the band somewhat by the introduction of MCW by disconnecting smoothing condensers. Spark transmitters were admirable and were carried by warships and merchant men right through World War II and some time thereafter. They saved many lives by crashing through on a wide spectrum. Mainly used for emergencies but could be used on occasions for establishing initial contact. (Not now, 40 years later, I imagine! Ed).

c) Transmitter notes could be altered to assist in the above. If a master oscillator was in use it could be "swung" slightly while keying to alert operators who had a tendency to "sit" on a frequency and wait for things to eventuate — not uncommon!

d) Morse is a definite aid to DXing in conditions that place "voice" at a disadvantage — QRN and difficulty with the language.

To justify my defence of CW I should present my own credentials. I served with the RAN 12 years permanent service with nine years continuous sea time, joining a few months before the outbreak of World War II.

I became a radio instructor as a Chief Telegraphist with the RAN and obtained my Commercial Operators' Certificate of Proficiency, First Class, in Marine and Broadcast.

Alan VK4SS, is quite right when he stated in his letter that even rookies could learn to handle 10 words per minute in as many weeks.

The Navy fellows were a little luckier in the earlier days as they did an average of nine months at Flinders Naval Depot.

The passing out requirements in Morse were 95 percent receiving code, plain language in English and Foreign, 95 percent transmitting and about 85 percent for the remaining Radio Theory, Magnetism and Electricity, practical demonstration of equipment, oral examination and the ability to handle W/T procedure. In the latter case, in the course of time, they had to learn in addition to their own Naval procedure, combined operations procedure, and of course, commercial procedure — all of them being vastly different from one another. There also came three changes in the phonetic alphabet for the voice circuits. Speed, 21 words per minute, before a rating could proceed to sea rejoicing! An absolute minimum of Morse-raw recruits failed to make the grade. One or two in ever-continuing classes of 12 to 15 men.

Later in the War we had to read taped Morse American Broadcasts at speeds never below 28 to 30 words per minute. We were in Australian units operating with Task Forces of the American 7th Fleet and therefore had to read *everything.* The transmissions were continuous with only a few seconds spacing between messages, and after a four hour watch our wrists were about numb. We couldn't scream RSI and benefits — my handwriting was never the same afterwards! All this forced us to take a crash course (one week) in touch typing which we had to master in double-quick time, not without initial difficulty in synchronising Morse to the keys. All of a sudden it "clicked" and from then on it was just plain routine for fast traffic, Morse or voice circuits.

Young recruits joining the ships had mastered typewriters at 21 words per minute and soon were on top of 30 words per minute along with the experienced operators.

My point is this, mobile operators know with absolute certainty that, under severe atmospheric conditions, Morse will get through when the case for voice is hopeless.

I well remember the time when three of us, all experienced operators, tried for about an hour to read a SOS when we were patrolling in the Coral Sea. It was easier to read the crashing static than to read the Morse under the murderous conditions of a major electrical disturbance. Headphones forward of the ears, loudspeakers and BFOs. We finally got it on repeats through joint effort. The ship was on fire plus the exact latitude and longitude and the fact that another ship was closer and racing to her aid.

If *voice* had been used for the distress message, I doubt if we could even have distinguished the word Mayday.

Before RTTY was fashionable in the amateur ranks, I was involved with it on a fixed Naval service during strained international relations. I was in charge of about 20 operators in the watch and was constantly bringing up remotely-controlled transmitters and numerous different frequencies in an attempt to clear heavily mounting traffic — to no avail. The exchanged tape call signs were just plain garbage. The dogged operator was, however, clearing the priority ones by hand-keying while I was trying short and long routes around the world — to no avail. After a long while conditions improved, the calls became crystal clear and the traffic finally cleared. But, hand Morse got through when RTTY did not. Pity I didn't have satellites to rely upon!

I became a radio amateur because I witnessed personally their invaluable contributions during WWII both technically and operating. Amateurs must carry on this proud tradition, stop arguing about Morse versus voice, and involve themselves in assistance during fires, floods, cyclones and earthquakes. We must continually improve without scorning the proven basics.

**John Grieve VK2EBG**
**Lot 1**
**Butlers Road**
**Bonville, NSW. 2441.**

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## CONFIRMATION

This letter is to confirm, in my case, the editor's comments in July AR, re novice upgrade incentive with the advent of novice privileges on two metres.

I had not been active in amateur radio for many years. The two metre privilege prompted me to build a two metre transceiver, hence renewing my interest in amateur radio.

Since becoming active again I have joined the Wireless Institute and, because of an interest in non-voice communication, am studying hard for the next exam. Perhaps then I can put the interest into active use.

I assure all amateurs that I don't have two heads and am indeed quite normal. Therefore, I would be saddened by any fellow amateur feeling degraded and debased because I've been given the opportunity to better myself by learning from him.

I hope my feelings and incentives are similar to other novices because when you have thrown away the tags, (Full/Limited/Novice) we all share the same interest — *amateur radio.*

Cheers

**Daryl Hooke VK3NEX**
**269 Mansfield Street**
**Thornbury, Vic. 3171**

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## STRAIGHT TO THE POINT

In reply to the "Future of Amateur Radio" article by R A Fenton in August issue of AR.

I must congratulate him on an excellent article straight to the point with a lot of common sense. His article and I am in complete agreement, with the exception of 500 to 1000 watts output for full

calls, as I have found with reasonable conditions one can work DX anytime on 10 to 25 watts output. It was of great interest to me, as it should be to everyone else, to read his statement of "What else does Morse do". And I quote; "It acts as a "Mechanism of closure" and creates an elite who are "in."". How very true and I personally think a greater requirement of entry to full call status should be the ability to operate and understand the regulation completely apart from the theory examination, not Morse as it is now.

I know, in my case, there is no way possible I can receive 10 words per minute due to my age of 72 years, suffering from a heart attack some 10 years ago, which restricts my capability to do so. And, if I could ask the question, would it make me a better operator or home-brewer which is what amateur radio should be all about. No, it would not, but knowing the regulations properly and theory would.

I often listen to full call operators playing with their computers on packet radio and RTTY using two metres as a medium of contact and one hears; "This disc won't load", "This program won't run", etc and I ponder why they didn't sit for an examination to prove their ability to operate such equipment and modes. Yes. I am sure there is an elite who are "in" an there is much discrimination in the whole of the hobby of amateur radio.

I recall when I first obtained my novice licence some four years ago after being a CBer for about eight years. I could not get on 80 metres quickly enough to put out a CQ call. In due course a VK3 full call answered my CQ — to whom I asked; "What is your personal, my name is Jim". I got a shock with the reply; "You must be one of those b. . . . . CB b. . . . . .! We on amateur radio don't say personal, it is your handle. Why don't you go back to CB."

What a great welcome to amateur radio after five years of study and hard work. So don't think for a moment I did not earn my place in amateur radio and I thoroughly believe I should be able to operate on all bands with an output of say 100 watts. What we need is more new blood in our hobby so I strongly suggest we all pull our weight together, open up all bands for novices, limited and full calls with output restrictions for novices and limiteds on the HF bands, and make our hobby more attractive to the many waiting out there to join us if it was not for Morse.

We can only use one band at a time and if we don't let other fellow amateurs use all of our bands the time is fast approaching when pressure will be applied from other interests to use them and we would lose them for ever. Think about it and start acting today as tomorrow could be too late, or is it we are all helping to slowly kill amateur radio for the future.

Thanking you.

**Jim Thornton VK2KAX**
**PO Box 80**
**Umina, NSW. 2257**

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## RECOMMENCEMENT OF VNG TRANSMISSION

I am very pleased to be able to inform readers that VNG was expected to commence transmission on 4.5 MHz about August 17, from the International Transmitting Station at Llandilo, NSW. The other two frequencies, 7.5 and 12.0 MHz should be operational soon.

Llandilo is situated west of Sydney and north-east of Penrith. The transmitter field is run by the Civil Aviation Authority, and its geographic co-ordinates are:

150 degrees 45 minutes 45 seconds east
32 degrees 42 minutes 40 seconds south

The purpose of the rest of this letter is to bring all contributors up to date with what has been happening with VNG in the five and a half months since the VNG Users Consortium was formed.

Telecom agreed to donate the VNG equipment to the National Standards Commission, and the Consortium collected over $10 000 in donations, more than sufficient to pay for the dismantling and packing of the equipment ($4500), for its removal from Lyndhurst to Llandilo ($1600) and for transit insurance ($250). The remainder of the Consortium's equipment acquisition funds will be used to partially reimburse AUSLIG (the Australian Surveying and Land Information Group of the Department of Administrative Services) for paying the $30 000 setting up costs at Llandilo.

The bulk of the VNG equipment, including four transmitters, was moved from Lyndhurst to Llandilo on June 16-17, 1988. The remainder followed on July 1-2.

As a result of some very hard work by the people at Llandilo, the initial VNG test transmission took place from there on August 11, on 4.5 MHz and 2.5 kW.

A second test commenced on August 12, on full power (10 kW) with the aerial properly tuned. It has continued intermittently since then and reception has been reported from Canberra, Melbourne and Hobart. Please note that this transmission is purely to test the equipment. It is *not* "on time" and does not have a voice announcement so, if you picked it up before it has been set accurately, remember that it is for your listening pleasure only!

On August 17, 1988, staff from Telecom Research Laboratories and National Measurement Laboratory will install and set a rubidium standard which is being used as an interim measure until a Telecom private line is installed. This line will provide the two-tone signal from Telecom Research Laboratories to control VNG's own precision quartz oscillators. The slow time code incorporated into VNG in 1986 also awaits the installation of a private line. Application has been made for the two lines.

The new voice announcement was made free of charge on August 8, by Radio Australia, and the voice is Barry Seeber's. The voice in the old Lyndhurst announcement was that of the ABC's Len Grice, who died recently.

We would like to thank you for your contribution to the VNG Users Consortium. Without donations from users, the "impossible" could not have been achieved, and VNG would have been dead and buried. Please remember that continuing contributions towards the yearly running costs will be essential to keep VNG on the air.

Please contact me if you have any questions, and we will be pleased to receive reception reports.

Happy time signal listening!

Yours sincerely,

**Marion Leiba**
**Honorary Secretary**
**VNG Users Consortium**
**26 Fimister Circuit**
**Kambah, ACT. 2902**

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## FUTURE OF AMATEUR RADIO [1]

I wish to thank you for publishing the article on the Future of Amateur Radio (AR August 1988) by R A Fenton.

Mr Fenton gets right down to the fundamentals of the problems facing amateur radio in Australia today and I hope the WIA Executive will give the subject matter in his article very serious and urgent consideration.

Another item that appears to have been neglected is the suggestion that the WIA Federal Office should send a short letter of congratulations to all newly licensed amateurs (also those who update) and if they are not already members, point out the advantages of WIA membership and invite them to join.

Yours sincerely,

**S J Oldroyd VK2JSO**
**51 Frederick Street**
**Concord, NSW. 2137**

*(While the Call Book contract was being re-negotiated new licensee information was unavailable. Now that the situation is resolved, we hope soon to be able to welcome newcomers appropriately. Ed.).*

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## FUTURE OF AMATEUR RADIO [2]

Referring to the article, "Future of Amateur Radio" by R A Fenton, August AR, I am an avowed home-brewer but lately have been loaned a professional transceiver which I can only commend as to its ease of operation. In his arguments re cost, convenience and more power, I suggest one may as well use the telephone and write off the ISD calls to the communication hobby. What satisfaction in connecting a hunk of wire and pressing a button?

I sat for my limited licence when I was 17 and was 52 years old when I attempted the Morse after only six weeks of practice.

I cannot see what huge amount of study (which is pleasant anyway) is required. I fear you are subscribing to the ills of the nation viz, "too easy to come by". I have studied the hobby for 40 years and thought I knew a lot until (a) I commenced building my equipment (b) I commenced operating (c) and now I am commencing to improve.

The thrill and sense of achievement in getting one's own equipment on the air (with the knowledge that it can be amended at any stage of operation or repair) and the consequent flexibility far transcends the actual on-air operation.

My argument against more power is, consider the 1 kW operators who transmit world-wide to ragchew with another 500 miles away, with their respective receiver gain controls no doubt set well down to prevent overloading one another! I have never exceeded about 100 watts and it is, and will continue to be, a thrill to achieve the difficult. I estimate the total cost of my equipment to be about $200 — using old television sets, etc, given to me.

The argument re the Morse requirement is paralleled in any worthwhile pursuit in life — we all know a lot more then we do — even if it only boils down to a test of mental discipline to keep the particular pursuit at a high standard. With a commercial installation and a button to press — why have a technical examination at all? The profile argument I feel could be resolved by a change of name from "amateur" to some other designation which does not conjure up visions to the uninitiated of "that queer bloke down the street who is always fiddling and spoiling my program on my (perfect) TV".

Alternatively, this change could apply to those amateurs with a long proven track record of design — construction and operation to differentiate with the newcomers.

At least when home-brewers have the good fortune to meet each other on the air, they have much more to talk about than the weather, signal reports and the seemingly endless antennas. On this basis I would have given up the hobby much sooner, considering the other facets of life — work, family, etc. There is still a desire in me to advance to a five-watt CW rig and find out how far I can get out with it.

I am convinced power is of little consequence — I easily reached Norway on 20 watts more than once, so it has little reward value. A more sensitive and selective receiver (which is open to any operator) to me is far more important. The headphone/loudspeaker argument is something akin.

Finally, many empires and governments have fallen from lack of initiative and enterprise to a decadence of a life of ease, no competition for

those who could afford it and apathy for the rest. Congratulations to the Department and the WIA for their stand on these matters.

Perhaps those who say that the spectrum allocated to us is unoccupied would better spend their time improving their receivers to hear the other 90 percent of world-wide operators.

Yours sincerely,
**Bill Freeman VK4AOW**
**63 Elizabeth Street**
**Acacia Ridge, Qld. 4110**

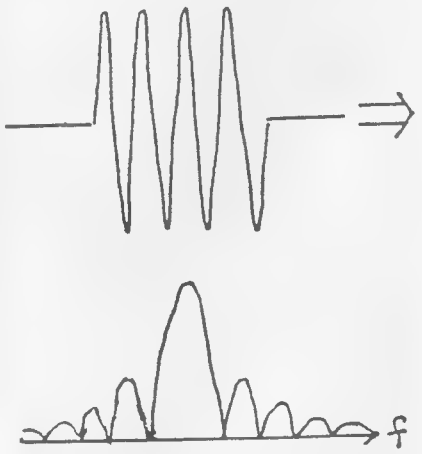
**ar**

▽ ▽ ▽

## KEY CLICKS

I was rather horrified and dismayed to read the "explanation" of key clicks presented by Lindsay Lawless in *Topical Technicalities* in August *Amateur Radio*.

The initial statement, upon which his entire argument is based, that a pure sine wave contains no sidebands, is only true if the sine wave continues for an infinite time without any amplitude or phase variation. A sine wave which is keyed on and off is no longer a pure sine wave, and reference to any book on Fourier analysis will show that the spectrum for such a waveform is as follows:




This spectrum has a main lobe centred on the carrier frequency, and many sidelobes. It is these sidelobes that are heard as key clicks. By "rounding off" the corners of the pulse, the amplitude of the sidelobes can be greatly reduced, and this is the principle behind shaping the keying waveform to reduce clicks.

Key clicks are *not* caused by "shock excitation of the receiver aerial system and associated tuned circuits". Indeed, the aerial and tuned circuits are linear networks, and linear networks cannot produce frequency components which are not present in the exciting signal.

The only time that it is valid to blame the other guy's receiver for key clicks is when the signal is so strong that the receiver is being overdriven into non-linearity. Noise blankers in particular are prone to this sort of overload. Provided the receiver is operating linearly, any key clicks heard will be coming from the transmitter.

I hope that in future Lindsay will take greater care to ensure that his explanations in *Topical Technicalities* are technically correct.

Yours faithfully,
**Jeff Pages VK2BYY**
**62 First Avenue**
**Berala, NSW. 2141**

**ar**

▽ ▽ ▽

## HALF IN DECIBELS

Reading the article by VK2PY on Measurement of Input/Output Impedance (August page 24), I found myself confused.

". . .continue until the output has decreased to half (-6 dB)." it says. Double the power, I thought, was 3 dB, double again (four times the power) to 6 dB.

Half the power, I thought, was -3 dB, ¼, -6 dB.

The rest I follow. My thanks to him for sharing it.

Yours sincerely,
**Ian Crompton VK5KIC**
**9 Craig Street**
**Richmond, SA. 5033**

*(As published, there is some ambiguity. The requirement is for* **voltage** *to be halved, which represents one-quarter of the power, which is -6 dB. Ed.).*

**ar**

▽ ▽ ▽

## GET A READER'S RESPONSE

In *Editor's Comment,* in *Amateur Radio,* August 1988, I noted that you referred to President Eisenhower as the president who had a sign on his desk with the inscription "The buck stops here". Not so, It was President Harry S Truman.

There is an old saying, "Editors who never make any mistakes, never do any work." The best way to get a reader's response, is to make an error now and then. By doing this, you will know if your publication is being read.

Best of 73,
**Bill Bentson W7QFY/VK4QF**
**15 Kapunda Street**
**Toowong, Qld. 4066**

*(Thanks for pointing out my error, Bill. Since Eisenhower succeeded Truman I guess I was only out by one! Ed.).*

**ar**

▽ ▽ ▽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# MORSEWORD 20

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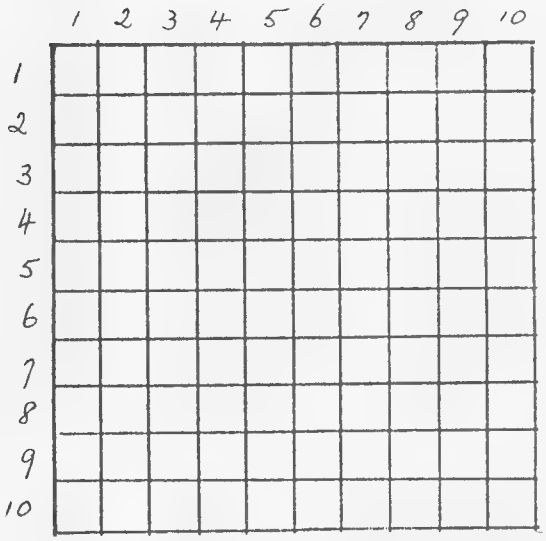
**Audrey Ryan**
*30 Starling Street, Montmorency, Vic. 3094*


**ACROSS**

1. Untruths
2. Road
3. Vehicle
4. Acts without words
5. Satisfied
6. Measure of medicine
7. Presented
8. Correct
9. It floats
10. Indian garment

**DOWN**

1. Vessels
2. 365 days
3. Ignite
4. Maori village
5. Pack away
6. A flower
7. Lift a weight
8. Interior
9. White lie
10. Facial feature




**Solution page 59. . .**

# Silent Keys

It is with deep regret we record the passing of:

| | |
|---|---|
| MR T D DANGERFIELD | VK5ATD |
| MR M J DEW | VK5JX |
| MAJOR ALBERT RANDALL | VK3BRR |
| MR JACK SCOTT | VK2NI (ex-VK2NR) |
| DR R K SMYTH | VK3AKS |

# Obituaries

### TANIGUCHI (MAC) YOSHIMI JA3MP/JG1PEA

It is with deep regret we announce the passing of Mac JA3MP/JG1PEA, in Sydney on July 22, 1988.

Mac was well-known for his famous TET antennas based on the "phase-feed" system and used by many amateurs worldwide. Perhaps not as well-known is the fact that Mac also played a major role in the introduction of the semiconductor and microcomputer industry to Japan.

Mac will be sadly missed by his many amateur friends, not only in Japan and the USA, where he spent most of his life, but throughout the world.

—Brian Beamish VK4AHD

ar

### HAROLD WRIGHT VK2AWH

Harold VK2AWH, passed away in mid-July, after being hit by a motor cycle in Sydney. He was aged 59 years. The day before his death Harold had been presented with the Telecom Special Medallion Award for bravery after risking his life during a flood rescue operation. He was in Sydney to see his son receive an apprentice award.

A specialist in radio communications, Harold was a member of the Telecom radio community support service when floods ravaged the northern New South Wales town of Lismore in May. (See also page 53, August AR).

He risked his life three times by scaling a 50 metre Telecom radio communications tower in appalling weather conditions to put up a new aerial.

Sympathy is extended to his widow and family.

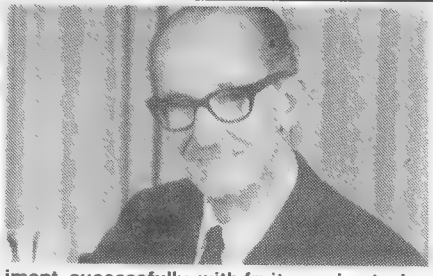
—Compiled from an article written by David Coren

### FRANK SHARPE VK4FV

It is a sad duty to inform readers of the passing of one of Queensland's most distinguished pathfinding pioneers. Sir Frank Victor Sharpe CMG, OBE, ED, VK4FV, became a Silent Key on July 9, 1988, at the age of 85 years after a long illness.

Throughout his professional life Frank wore several hats and was a member of many clubs. Besides being Chairman and Director of his family companies, mostly in tools and hardware, he obtained the Bell Helicopter Company Franchise for Australasia in 1955. He was a member of the following clubs:

Brisbane, Queensland, Tattersalls, Royal Queensland Golf, Queensland Turf, Rotary, and of course, the WIA. Impossible though it may seem, he still found time to experiment, successfully, with fruit growing techniques.



Frank joined the Australian Military Forces and attained the rank of Acting-Colonel in Charge of *all* AMF administration in Queensland. One of his many responsibilities during World War II was the creation of a logistic branch to handle the sudden influx of American armed forces arriving in Brisbane. For all these services to the community he was knighted in 1979.

He obtained his amateur radio transmitting licence in 1923 with the call sign, OA4AZ. (This early document is still in existence and is held by long-time friend, W Bentson VK4QF). Immediately, he set up a MW station on the roof of the old Trades Hall in Brisbane (now demolished) and from this elevated vantage point conducted regular *sound* broadcasts on 240 metres. These transmissions were among the very first programs of voice and music received in Brisbane homes. OA4AZ was instrumental in setting up the Radio Society of Queensland.

A key to Frank Sharpe's character can be had from the motto which he pinned to the shack wall as a young man; "You can never be beaten if you never give in".

The WIA Queensland Division extends its condolences to his YF, daughter Jennifer and son Peter.

*(Was he the first pilot to land a "chopper" on top of Ayres Rock — without permission?).*

—Alan Shawsmith VK4SS, WIAQ Historian

### PAT HOGAN VK4NJL

Pat succumbed on June 22, 1988, to an illness he had bravely borne for about two years.

The extension of Novice privileges to two metres came in time to provide Pat with much pleasure during his final days.

Pat always watched for a new country on 10 and 15 metres even at the worst of the low sunspot cycle. His voice will be missed there as well as on 80 and two metres.

Pat was intrigued by radio from his youth. Though first trained in the plumbing trade, he made the break to conduct his own radio sales and service business at Mundubbera in the 1950s. Subsequently he became involved in the theatre industry as a projectionist, but was unable to find the time to attain his amateur licence until his retirement in 1978.

All of Pat's many friends, especially members of the Brisbane North Radio Club, extend sympathy to his wife Eunice and family.

—Bill Rahmann VK4BIL, Honorary Secretary, Brisbane North Radio Club

### JACK SCOTT VK2NI

Jack passed away after a long illness on July 29, 1988. He was active in telecommunications and amateur radio for well over 50 years.

Jack's original call sign was VK2NR, until the suffix was allocated to the Northern Rivers Broadcast Station many years ago.

Vale Jack Scott VK2NI.

—Bert Dimmock VK2OW

ar

### N A R (ROB) WILSON VK5WA

Rob Wilson was born in Perth, WA, on May 25, 1900.

In 1916, he enlisted in the first AIF and sailed from Perth as a member of the 6th Tunneling Company.

Some time after his arrival in France the authorities caught up with him (under age) and he was discharged.

He returned to the UK and immediately enrolled in a Marconi Course for Ship Radio Operators. He qualified and went to sea in the Merchant Marines operating across the North Atlantic using spark and crystal.

He left the marines in 1924 and joined the motor industry in North America.

In 1932, Rob returned to Australia as Superintendent of a silk weaving mill in Ballarat, but left in 1935 to return to the motor industry again by joining General Motors, in Melbourne.

He subsequently transferred to the GMH plant in Adelaide, where he remained until he retired.

For many years he owned and used the Paddle Steamer *Torella*, now a holiday cottage which can be seen nestling among the willows on the eastern bank of the River Murray, five kilometres upstream from Mannum.

Rob's interest in radio communication was revived in 1960 when he obtained the AOCP and call sign, VK5WA. This enabled him to fulfill an ambition to join the Firebird Club, the amateur radio group associated with the world-wide General Motors organisation. He maintained this interest until two years ago when failing health forced him to cease operating.

During 1969, he was co-opted on to the local council and given the task of finding a suitable building for the Divisional Headquarters. With this he was successful ad the modified Burley Griffin Incinerator is a standing memorial to his effort. He was made a Life Member of the WIA (SA Division) in gratitude for this success.

Ron passed away on May 5, 1988. Sincere sympathy is extended to his wife, Joanna.

—John Allan VK5UL

### JOHN (JACK) HUDSON VK3XL

With deep regret we record the passing of Jack Hudson on May 10, 1988.

Jack first became interested in radio during the war years after serving with the 57/60 Battalion, later transferring to the RAAF. After initial training, he was posted to the Wireless School in Winnipeg, Canada, and later the Gunnery and Bombing School, Mossbank.

Upon completion of these courses, he was sent to England for refresher courses at Radio School, before being posted to Einshemer, Palestine. Jack attained the rank of Flying Officer.

He was a member of the RAAF "Odd Bods" Association and RSL.

Post-war, Jack married and settled in East Ivanhoe with his wife Muriel and daughter Janine. He was a devoted family-man, keen gardener, talented artist and true "Jack-of-all-Trades" always ready to help with odd jobs.

He was a ladies shoe designer by profession, but after a short break following his

**retirement in 1973, he joined the RMIT accounts branch. Early in this period, Jack and the writer became acquainted, with the result that Jack's old passion for Wireless was rekindled. He attended another "refresher course", this time with the WIA, and obtained his AOCP on February 19, 1974 and the call sign VK3XL.**

**By this time, Jack had bought a second-hand home-brew receiver and spent some time listening to the amateur bands. Anxious to get on the air himself he decided to build himself a transmitter rather than to buy "off the shelf". Despite many other interests, he managed to devote some spare time to this priority project and an entry in my log dated August 18, 1974 reads; "VK3XL testing his home-brew HF transmitter — 10 watt, valve type".**

**The call sign VK3XL soon became well-known on some of the local nets. He later acquired an SSB transceiver and extended his interest to DX. He made many friends on the VHF bands and always ensured there was room left for his radio equipment when packing for holidays.**

**He became an enthusiastic watcher of ATV transmissions and eventually acquired some ATV equipment and began his own transmissions.**

**In June 1986, Jack contracted Leukemia and had been undergoing constant treatment for the past two years. Despite this, he carried on as normal a life as was possible, never losing his sense of humour.**

**He will be sadly missed buy his many friends in the amateur radio fraternity. Sincere sympathy is extended to his wife Muriel and daughter Janine.**

—Ike Tarbit VK3OW

ar

## PHIL BOWERS VK1YS

Phil's short 39 years ended tragically in a skiing accident at Thredbo on July 12, 1988.

He was born at Cooma on December 29, 1948, where his father was stationed in the police force. Later the family was transferred to Pambula, followed by Coolamon (near Wagga Wagga). Phil attended Wagga High School. His family then transferred to Lithgow, and after 12 months at the PMG Training School in Sydney, Phil returned to finish his time with the PMG in Wagga, in 1967. At this time he joined the original Wagga Radio Club training course and very soon obtained his amateur licence (VK2ZOE).

He was a very imaginative amateur and was particularly energetic and a perfectionist in most things that he became involved in. As well as being a very keen amateur, he took a very keen interest in hockey and was a dedicated player.

As time progressed, his work and general responsibilities with the PMG saw him transfer to Canberra. Initially he worked in the telephone exchange, but later transferred to the then Radio Branch as an Assistant Radio Inspector. Upon his untimely death, Phil was Acting Manager, Licensing in the Canberra Central Office of DOTC. His specialty within DOTC in recent years was the setting up and managing changes to the new DOTC computer network.

Phil spent from around 1972 (when he left Wagga) in Canberra, except for a few years with DOTC in Sydney. During his time in Sydney he met and married Vilma before returning to Canberra in mid-1985, and setting up a home.

During his time in Canberra, he exhibited the familiar energetic approach to anything he undertook. He had a mix of activities including a great involvement in the Capital Territory Caving Group, the ACT Car Rally Group, and amateur radio. He was in the winning team of the prestigious Rally Championship event in 1974 and was also editor of the Car Club magazine for some time around 1976.

It has been said by many that Phil achieved more in his 39 years than most men would hope to achieve in 60 years or more.

He was an inspiration to all. Deepest sympathy is extended to his wife Vilma and family. He was a real achiever.

—Sid Ward VK2SW/VK2ZMP

ar

## GEORGE THOMAS SLAWSON VK2AFN

**Tom passed away suddenly on June 28, 1988. He will be sadly missed by his many friends.**

**Tom was born on November 7, 1916, and was educated at Christian Brothers' College, Manly. Upon completion of his education he became a Dental Technician with a keen interest in amateur radio, receiving his licence in 1937.**

**At the outbreak of World War II he enlisted in the Army, (8th Division Signals) and rose to the rank of Sergeant. When Singapore fell he became a Prisoner of War and, along with many other Australians, was put to work on the notorious Burma Railroad.**

**At the end of the War, and five years as a POW, he returned to Australia and subsequently took up employment with the Taxation Department.**

**Tom resumed his amateur radio activities and was a top CW operator, keeping scheds with numerous friends around the world. He excelled in home-brewing, building most of the auxiliary equipment installed in his shack, including the 40 foot free-standing tower supporting his TH-6 beam.**

**Sincerest sympathy from his many amateur radio friends is extended to his family.**

—Bert Dimmock VK2OW

ar

## FRANCIS JAMES SULLIVAN VK3ZJ

**Frank Sullivan became a Silent Key on July 23, 1988, at the age of 73. He was first licensed in 1947 as VK3AZJ, later taking the call VK3ZJ when it became available on the untimely death of his long-standing friend, Jim Salmon.**

**He served in the Army from 1940 to 1945, most of that time in a Heavy Anti-Aircraft Battery where he specialised in the Predictor when it represented a new technique. Later he became an instructor in the use of this equipment before moving into a Cipher Section.**

**Frank retired in 1979 as a Director of Bowater Paper after a long and distinguished career in the paper industry.**

**His main interest in amateur radio was in HF with a particular interest over many years in working into South Africa on 21 MHz. After retirement, he was active in several daytime VK nets where he made many friends who will remember his friendly cheerful manner. He was also very interested in the new 18 and 24 MHz WARC bands where he worked the world on a rotary dipole until shortly before he died.**

**Sincere condolences are extended to his wife Betty.**

—Jack O'Shannassy VK3SP

ar

## COMMUNICATING

Signalling has been in use since humanity began and had to communicate with one another, to express wants and needs, emotions and intentions. These feelings were expressed through eyes, mouth, cheeks and by moving the limbs.

Practically, all the above require the communicators to be either visibly or audibly near each other. Therefore, the need for other distinctive methods came into existence for long distance communications. The red Indians used smoke signals, drumbeats were used by African tribes, and pipes were used in India. Often these were relayed signals.

However, there too were not adequate for long distance communication. When electricity was discovered and transmission through electric current was invented, the Morse system proved quite handy. Morse can be used in many ways — the buzzer as in telegraphy and wireless, torch light or heliographs, whistling, tapping, tugs or pulls, smoke are a few methods of relaying Morse.

During World War I, two German soldiers were kept under guard in solitary cells and were not allowed to talk to each other. However, they communicated with each other by blinking their eyes in Morse code and escaped from prison.

The sounds of 'SOS' being tapped by a trapped crew from within the cabin of a sunken ship attracted the attention of a rescue party and the crew were duly brought to safety.

Today, radio signals and wireless communication facilities of many different kinds are being invented and used daily world-wide. But Morse is still practiced by Scouts and others in the community.

During Jamboree on the Air (JOTA), Scouts, Guides and amateurs communicate nationally and internationally.

In India the National Headquarters of the Bharat Guides and Scouts have launched an inaugural radio scouting and amateur course with the help of the National Institute of Amateur Radio. Distinguished guests from the ministries of Delhi have visited Headquarters to witness the program and expressed their delight in such a worthwhile exercise.

—Written by K V Prasad Naidu VU2JES for the NIAR Newsletter, June 1988 and condensed for *Amateur Radio*

ar

## SEANET '88

The Radio Amateur Society of Thailand (RAST) cordially invites all amateurs to the 16th Annual Southeast Asia Network Convention (SEANET 88) to be held in Bangkok from November 11 to November 13, 1988. The event will be staged at the Ambassador Hotel in Bangkok.

The main purpose of the convention is to give SEANET participants a chance for eyeball QSOs. SEANET '88 will begin formally on Friday with a welcome dinner in the evening. There will be lectures, discussions and commercial exhibits throughout the convention and RAST will operate a station from the Hotel.

As a special attraction there will be a performance of Thai classical dancing on Friday night. The grand banquet on Saturday night will feature awards and a raffle with many prizes. SEANET '88 will formally close with a buffet luncheon on Sunday although there will be special programs on Sunday afternoon for delegates wishing to stay over. RAST will offer arrangements for shopping and sightseeing tours, etc.

For more details of SEANET '88 contact the RAST Secretary, PO Box 2008, Bangkok, Thailand.

—Contributed by David Rankin VK3QV/9V1RH

ar

# STOLEN EQUIPMENT REGISTER

The Stolen Equipment Register is one of many services offered to members by the Wireless Institute of Australia.

It has now been in operation since 1984, and is now maintained on a computer database in the Federal Office.

At regular intervals, updates of the complete list, sorted into categories of:

Equipment Manufacturer/Model
Owner
Date Stolen

are distributed to each Division.

Members wanting to take advantage of this register, either to publicise the theft of their equipment, or to check equipment they are about to purchase, may contact their Division, or write or telephone the Federal Office.

Any telephone reports of stolen equipment must be followed immediately with written confirmation of the details.

For maximum efficiency, these details should include:

Manufacturer's name
Model
Type of equipment
Serial number
Date stolen
Owner's name, address, and call sign
Any distinguishing features or modifications
Police contact (if any)

When equipment is recovered, it is important that you advise the Federal Office as soon as practicable.

This list is the best information we have at the Federal Office at the time of going to press, but is based entirely on information received from you, the member.

Would all readers please check this list and immediately advise if there are any amendments required.

Bill Roper VK3ARZ
July 31, 1988

| MANUFACTURER MODEL | SERIAL NO | OWNER | STOLEN |
|---|---|---|---|
| **Dick Smith Audio** | | | |
| **Gen** | | **VK2XJC** | *15.05.85* |
| **Dick Smith Explorer** | | **VK2KUR** | *24.09.84* |
| **Dressler EVV2000** | 1027 | **VK2XJC** | *15.05.85* |
| **Galaxy 5** | 5672V2118 | **VK3UB** | *06.06.87* |
| **Galaxy 5** | 5503V1309 | **VK3UB** | *06.06.87* |
| **Icom** | | | |
| **IC02A** | 29901052 | **VK2CKD** | *05.02.86* |
| **IC202** | 03482 | **VK3ZJY** | *11.08.87* |
| **IC202** | 5144 | **VK4ZSH** | *03.09.85* |
| **IC202** | 41013 616 | **VK3ZBI** | *01.10.85* |
| **IC211** | 6804309 | **VK3BRV** | *17.10.84* |
| **IC215** | 05156 | **VK2AMX** | *20.11.84* |
| **IC22** | 12266 | **VK3BLC** | *29.04.85* |
| **IC22A** | 3402112 | **VK2ZIG** | *01.07.87* |
| **IC22A** | 1914 | **VK4ZSH** | *03.09.85* |
| **IC22A** | | **VK3YV** | *21.08.87* |
| **IC22A** | 8853 | **VK3ZU** | *03.05.84* |
| **IC22S** | 11912 | **VK2ETJ** | *06.03.88* |
| **IC22S** | 14957 | **VK3DYZ** | *11.09.84* |
| **IC22S** | 14727 | **VK3ME** | *14.08.85* |
| **IC22S** | 07570 | **VK3KJA** | *14.12.87* |
| **IC22S** | 62014533 | **VK3KAW** | *23.12.85* |
| **IC25A** | 03831 | **VK2DPM** | *04.11.84* |
| **IC280** | 02592 | **VK2BVW** | *30.03.88* |
| **IC290H** | 17701965 | **VK3ZBI** | *01.10.85* |
| **IC290H** | 17703342 | **Emtronics** | *17.02.86* |
| **IC2A** | 12213830 | **VK3YOD** | *02.12.83* |
| **IC2A** | 12209700 | **VK2AHF** | *08.09.87* |
| **IC2A** | 04484 | **VK1MX** | *21.01.85* |
| **IC3200** | 01046 | **VK2CIM** | *02.08.87* |
| **IC45A** | 01876 | **VK2DPM** | *04.11.84* |
| **IC45A** | 18351005 | **VK3KJC** | *22.02.84* |
| **IC490A** | 16101192 | **VK3BVO** | *01.03.83* |
| **IC4E** | | **VK2KZZ** | *16.08.87* |
| **IC4E** | 18103021 | **VK3YOD** | *02.12.83* |
| **IC502** | 00618 | **VK3ZJY** | *11.08.87* |
| **IC551** | 01273 | **VK4ZSH** | *03.09.85* |
| **IC551** | 9401253 | **VK3ZBI** | *01.10.85* |
| **IC551-D** | 99003878 | **VK3YSG** | *01.01.84* |
| **IC701** | 8001039 | **L20470** | *15.02.88* |
| **IC701PS** | 7800978 | **L20470** | *15.02.88* |
| **IC720A** | 06242 | **VK4ZSH** | *03.09.85* |
| **IC730** | 13806798 | **Mel Uni** | *18.09.85* |
| **IC735** | 36304455 | **Emtronics** | *17.02.86* |
| **ICPS20** | 10101966 | **VK3YSG** | *01.01.84* |
| **K D K 2025 Mk II** | | **VK2ETJ** | *06.03.88* |
| **K D K FM2025 Mk II** | A5020 | **VK2AML** | *03.07.88* |
| **K D K Multi 7** | | **VK2TJB** | *09.02.88* |
| **Kenwood** | | | |
| **AT180** | 0020450 | **VK2???** | *11.11.87* |
| **AT200** | 820049 | **VK2DCB** | *16.08.84* |
| **DG5** | 730475 | **VK2DCB** | *16.08.84* |
| **SP520** | | **VK2DCB** | *16.08.84* |
| **TM221A** | 8022541 | **VK3ZJY** | *11.08.87* |
| **TM221A** | 8110722 | **VK2CCD** | *09.04.88* |
| **TR2400** | 0061926 | **VK2PJ** | *20.04.85* |
| **TR2400** | 0061950 | **VK2DPM** | *28.08.84* |
| **TR2500** | 3033045 | **VK2DYW** | *18.02.87* |
| **TR2500** | 3040009 | **VK2ZQC** | *29.05.85* |
| **TR2600A** | 7030631 | **VK5AAR** | *03.10.86* |
| **TR7850** | 202080 | **VK2DED** | *06.03.84* |
| **TR7850** | 1111125 | **VK2CCK** | *07.02.86* |
| **TR7950** | 4010747 | **VK2TVG** | *08.08.85* |
| **TR9000** | 1020527 | **VK2KAH** | *03.01.87* |
| **TR9000** | 1050780 | **VK3YSG** | *01.01.84* |
| **TS120S** | 950819 | **VK2???** | *11.11.87* |
| **TS120V** | 0081224600 | **VK2VWN** | *03.05.85* |
| **TS130S** | 40401C8 | **VK2BVM** | *30.03.88* |
| **TS130SE** | 2060697 | **VK2KAH** | *03.01.87* |
| **TS430S** | 4010322 | **VK2XJC** | *15.05.85* |
| **TS520S** | 820972 | **VK2DCB** | *16.08.84* |
| **TS700A** | 350409 | **VK3ZJY** | *11.08.87* |
| **TS930S** | 3050176 | **VK7JG** | *13.01.83* |
| **VFO-520** | | **VK2DCB** | *16.08 84* |
| **Kyoto FM144-10** | 5027 | **VK2KUR** | *24.09.84* |
| **Leader LSG11** | 0041244 | **VK3KJA** | *14.12.87* |
| **Leader LSG16** | 1081098 | **VK3YSG** | *01.01.84* |
| **Mirage B1016** | 550779 | **VK3KAW** | *23.12.85* |
| **Realistic AX190** | 500111 | **VK3KJA** | *14.12.87* |
| **Realistic SP190** | 20-5191 | **VK3KJA** | *14.12.87* |
| **Regency HX2000** | | **DSE Vic** | *13.05.85* |
| **Saiko SC7000** | | **VK2XJC** | *15.05.85* |
| **Tempo 1S** | 012240 | **VK3UB** | *06.06.87* |
| **Thorn P&W TV** | 107512 | **VK2XJC** | *15.05.85* |
| **Tokyo HL160V** | 829331 | **VK2XJC** | *15.05.85* |
| **Tokyo HL86V** | 819595 | **VK2XJC** | *15.05.85* |
| **Tokyo HL90U** | 8304246 | **VK2XJC** | *15 05.85* |
| **Trio CS-1560A2** | 10-20171 | **VK3YSG** | *01.01.84* |
| **Uniden 2020** | 50806009 | **VK2KSY** | *16.09.85* |
| **Welz SP200** | 600384 | **VK2XJC** | *15.05.85* |
| **Yaesu** | | | |
| **FAS14R** | 140138 | **VK3KJA** | *14.12.87* |
| **FC707** | 11140775 | **VK2DBB** | *28.04.86* |
| **FC707** | 11140765 | **VK3DHV** | *28.04.86* |
| **FRA7700** | 2H050293 | **VK2???** | *11.11.87* |
| **FRG7** | 299L26099 | **VK3ZLY** | *28.07.83* |
| **FRG7700** | 2K210752 | **VK2???** | *11.11.87* |
| **FRT7700** | 2K070479 | **VK2???** | *11.11.87* |
| **FT101B** | 83L102373 | **VK3KJA** | *14.12.87* |
| **FT101E** | 8G350283 | **VK2SS** | *29.06.84* |
| **FT101E** | 8L370414 | **VK3DYZ** | *11.09.84* |
| **FT107M** | 1T110012 | **VK2ALN** | *03.03.87* |
| **FT200** | 2K332252 | **VK3DYZ** | *11.09.84* |
| **FT203R** | 4H081794 | **DSE Vic** | *13.05.85* |
| **FT207R** | 10132725 | **VK2EMC** | *04.03.85* |
| **FT207R** | 1D132704 | **VK2ETJ** | *06.03.88* |
| **FT208R** | 3N350964 | **VK2CBA** | *30.07.85* |
| **FT209R** | 4L06245 | **DSE Vic** | *13.05.85* |
| **FT209RH** | 4K050838 | **VK3CE** | *01.01.85* |
| **FT209RH** | 5K190401 | **VK2HW** | *21.02.86* |
| **FT224** | 6G307290 | **VK3OV** | *28.05.87* |
| **FT230** | | **VK2EGD** | *18.08.87* |
| **FT290R** | 1L081321 | **VK3KJC** | *22.02.84* |
| **FT290R** | 4E360554 | **VK3KGH** | *01.06.85* |
| **FT290R** | 1M081340 | **VK2VE** | *04.01.87* |
| **FT290R** | 3C260713 | **VK2EGD** | *12.11.86* |
| **FT290R** | 5G450016 | **VK7HW** | *18.04.88* |
| **FT480R** | 1H12069 | **VK1ZUR** | *29.05 84* |
| **FT620** | 010489 | **VK4ZSH** | *03.09.85* |
| **FT680R** | 3H080202 | **VK2XJC** | *15.05.85* |
| **FT7** | 81090839 | **VK3BYK** | *28.06.83* |
| **FT7** | 8I090728 | **VK2KSY** | *16.09.85* |
| **FT707** | 1D161414 | **VK3DHV** | *01.06.87* |
| **FT708R** | 1H010948 | **VK2PJ** | *20.04.85* |
| **FT757GX** | 3N040371 | **VK2DBB** | *28.04.86* |
| **FT780R** | 1J061616 | **VK3ZBI** | *01.10.85* |
| **FT780R** | 3F070521 | **VK2XJC** | *15.05.85* |
| **FV101** | 1E353 | **VK3KJA** | |
| **Y901P** | 9L030072 | **VK1ZVR** | *15.12.84* |
| **YP150** | 81090469 | **VK2DCB** | *16.08.84* |

**128 items**

For further information of

## HOW TO JOIN THE WIA

Fill out the following form and send to:

**THE MEMBERSHIP SECRETARY**
**WIRELESS INSTITUTE OF AUSTRALIA**
**PO BOX 300**
**CAULFIELD SOUTH, VIC. 3162**

I wish to obtain further information about the WIA.

**Mr, Mrs, Miss, Ms:** .....

**Call Sign (if applicable):** .....

**Address:** .....

.....

**State and Postcode:** .....

## Solution to Morseword 20

Across: 1. lies 2 street 3 jeep 4 mimes 5 sated 6 dose 7 gave 8 fix 9 raft 10 sari
Down: 1 vats 2 year 3 fire 4 pah 5 stow 6 rose 7 heft 8 inner 9 fib 10 lip

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | • | — | • | • | • | • | • | • | • | • |
| 2 | • | • | • | — | • | — | • | • | • | — |
| 3 | • | — | — | — | • | • | • | — | — | • |
| 4 | — | — | • | • | — | — | • | • | • | • |
| 5 | • | • | • | • | — | — | • | — | • | • |
| 6 | — | • | • | — | — | — | • | • | • | • |
| 7 | — | — | • | • | — | • | • | • | — | • |
| 8 | • | • | — | • | • | • | — | • | • | — |
| 9 | • | — | • | • | — | • | • | — | • | — |
| 10 | • | • | • | • | — | • | — | • | • | • |

# HAMADS

### TRADE ADS

**AMIDON FERROMAGNETIC CORES:** Large range for all receiver and Transmitting Applications. For data and price list send 105 x 220 millimetre SASE to: **RJ & US IMPORTS,** Box 157, Mortdale, NSW. 2223. (No inquiries at office please . . . 11 Macken Street, Oatley). Agencies at: Geoff Wood Electronics, Lane Cove, NSW. Webb Electronics, Albury, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

**RADFAX2:** Hires radio facsimile Morse & RTTY program for IBM PC/XT on 360K 5.25" floppy + full Doc. Need CGA, input port, SSBhf FSK/Tone decoder. Has re-align auto-start view save print + +. Also "RF2HERC" same as above but suitable for Hercules card and "RF2EGA" for EGA card (640X350 mode). Programs are $30 each + $3 postage ONLY from M Delahunty, 42 Villiers Street, New Farm, Qld. 4005. Ph: (07) 358 2785.

**TANDY COCO OWNERS:** Grosvenor Software (G4BMK) now available in Australia. AX-25 $90 (no TNC required), RTTY/ASCII $39.50, AMTOR $82, CW $37, SSTV (Rx) $39. Details from Dave Ralph VK4ASB, 23 Darwin Street, Aspley, Qld. 4034. Ph: (07) 263 3872 AH.

### WANTED

**MANY AMATEURS WANTED:** at the Ballarat Hamvention on Sunday, October 30. Bring your unwanted gear to the Auction. Stall holders wanting space contact Kevin VK3WN. Ph: (053) 35 5011.

### WANTED — NSW

**KENWOOD TS-600 6M ALL-MODE TRANSCEIVER:** any condition. AWA Voltohmyst VTVM, any condition. Replies please to: Nev VK2QF, Hargraves, NSW. 2850. Ph: (063) 73 8624/73 8554.

**YAESU YC-7B OUTBOARD DIGITAL READOUT:** Perfect condition wanted urgently. Norm VK2PIP. Ph: (065) 68 2544.

### WANTED — VIC

**CIRCUIT DIAGRAM:** instruct/description etc. Anything on unidentified "Radiola" 8-valve, tuned RF, MW/SW radio, poss late 30s, with most "Selex" transfers rubbed off/ unintelligible. In 3 feet tall cabinet, with 8 x motorised MW stn-preselect — and 2 x SW "scan" keys, plus a "manual" & "phono" key. Has dynamic speaker type 12EI, F1060 manuf std cert label, & punched in chassis No B0093843. Uses 5V4G, 2 x 6F6G, 2 x 6B8G, 2 x 6U7G, 6K8G valves. Will recompense any costs. Hartmut VK3DYD, QTHR. Ph: (03) 555 6714 evenings.

**EX-ARMY PRC10:** or PRC25 low band transceiver & AM-4306/GRC RF amp. Must be working & in good cond. Damien Vale VK3CDI, PO Box 2395, Mildura, Vic. 3500. Ph: (050) 23 0919 AH.

**FT-101E or ZD:** Frequency meter. Dummy load. Power & SWR meter. Contact Orm VK3ASY. Ph: (03) 723 4688.

**PROPELLER PITCH MOTOR:** in working order & IC MC1469. Stan. Ph: (053) 32 2340.

**VARIAC OR SIMILAR:** 150 watts or any small unit. Ron VK3BRC, QTHR. Ph: (03) 819 3568.

### WANTED — QLD

**CIRCUIT:** Handbook, service manual for Eddystone EC-10 receiver. Will pay costs for photocopying. Pye 9 MHz crystal filter, type 9-0A 10.7 MHz IF transformers. Len VK4JZ, QTHR. Ph: (07) 398 2002 AH.

**CIRCUIT OR DATA ON THE FOLLOWING:** Audio Generator Tech Model 22D. Audio Generator Techtron type 020K (Made in Melbourne). Kenwood digital DG5 display-counter for TS-520 transceiver. Advance Electronics digital voltmeter Model DVM1 (Nixi tubes). "Astor" waveform generator No 2 Model A. Marconi TF2333 signal generator 30 Hz - 550 kHz. Also the following valves wanted for radio restoration: 5Y3GT, (Philips 58), (Mullard A7), (AWA 2A5-2A6), (Eveready ER57), & Taylor Model (101) Multimeter. VK4DY, QTHR. Ph: (071) 96 1186.

**MOBILE MOUNT MB-100:** for TS-130S Kenwood. VK4BIK. Ph: (071) 91 7317.

**OWNERS MANUALS:** for Uniden 2020, Yaesu FT-101Z & FV-101DM. Photocopies OK. Will pay costs. Please write to B McIvor, 30 Brennan Parade, Strathpine, Qld. 4500.

**SERVICEABLE 80M RESONATOR & WHIP ASSEMBLY:** for Hy Gain 18 AVT vertical antenna. Can anyone help please? Consider complete antenna if necessary. Cress VK4CCA. Ph: (07) 261 3363.

**YAESU FC-707 AND FV-707:** must be in good condition. Contact Pat VK4VGS, PO Box 152, Pomona, Qld. 4568. Ph: (071) 85 1240.

# Hamads

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

* Eight lines free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.
* Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment. (A courtesy note will be forwarded that the ad has been received and will appear in . . . . . issue of AR.
* Copy in typescript, or block letters to PO Box 300, Caulfield South, Vic. 3162
* QTHR means address is correct as set out in the WIA current Call Book

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows:

**$22.50 for four lines, plus $2.00 per line (or part thereof)**

**Minimum charge — $22.50 pre-payable**

Copy is required by the Deadline as indicated on page 1 of each issue.

STATE

FOR SALE WANTED MISCELLANEOUS

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**Name and Call Sign:** .....

**Address:** .....

**Phone Number (if applicable):** .....

## WANTED — SA

**CIRCUIT FOR HOME-BREW 70 CM S/STATE TRANSVERTER:** 2m or 10m input. Will pay any costs. Details to Alan VK5BWG, QTHR. Ph: (086) 43 6455.

**TWO 572B VALVES:** Will pay a good price or swap for other tx tubes I have. I have bought a FL-2100B linear which has flat valves in it & need either new or good used valves to get it going. Gary VK5DX. PH: (08) 370 9196 AH or (08) 230 7133 BH.

## WANTED — WA

**HEATHKIT HR-10B RECEIVER:** Companion to DX-60B transmitter. Bruce VK6OO, PO Box 28, North Perth, WA. 6006. Ph: (09) 328 8064.

## WANTED — TAS

**IC-502 OR SIMILAR:** 25W linear to suit. 25W 2m linear. 144/432 MHz & 144/1296 MHz transverters or converters. Need not be "state-of-the-art" but must be GWO. Wayne VK7WD. Ph: (002) 67 2356 AH.

## FOR SALE — NSW

**IBM EXPANSION UNIT FOR PC or XT:** Contains 1 10MB drive & controller, 130W power supply & bus interface cards. Gives 6 free slots. Room for second hard drive. Unit is as new. $500. Hidaka VS-33 triband Yagi, heavy duty 2 kW rating. Good condition, ready for DX. Buyer collect. $250. VK2HL for further details. Ph: (02) 981 4762.

**ICOM IC-04A H/H TX:** used only once complete in carton with battery pack & charger etc. 13 el Yagi 70 cm Tokyo hi-power. HL-45U 45 watt lin with preamp VGC. $675. 6 metre all-mode tx or 28 MHz to 6 metres transverter. Price & details. VK2KAX. Ph: (043) 41 7693.

**KDK 2M TRANSCEIVER FM-2016A & P/S 12 WATTS:** Excellent cond $250. Nine element 2m beam. $40. Swan (Astro) 102BX transceiver & P/S solid state; good cond $500. All manuals. Freda VK2SU, QTHR. Ph: (069) 68 1556.

**KENWOOD TS-520:** in good cond, with new finals. 100 watts output, spare power lead. $350. Kenwood TS-120V in good working cond, plus hand mic. $300. Will sell both together for $500. Am updating equipment for new shack. Contact Ken VK2PKW, QTHR. Ph: (065) 62 5755.

**TRIANGULAR TOWER 8M HIGH:** Never used, fully galvanised. $250 ONO. Details VK2CJV. Ph: (02) 809 5024.

## FOR SALE — VIC

**ATN 8-ELEMENT LOG PERIODIC ANTENNA:** 2 years old. 13-30 MHz $475. VK3NAJ. Ph: (051) 74 6559 AH.

**HISTORY OF AMATEUR RADIO:** QST magazines from 1932 to 1970 complete with quantity both before & after these dates. $300 or make an offer. They must go. Yaesu FT-709R 70cm hand-held. With FNB-4 nicad pack, charger, leather case, etc. Almost unused, in original box. Cost over $700. Sell $400. Also Icom Micro 2A 2m FM hand-held. Also as new in original box with leather case $350. Yaesu YM-38 dual impedance scanning desk mic, in original box. $60. VK3OM, QTHR. Ph: (03) 560 9215.

**KENWOOD TR-2400:** with l/case, base stand/charger & car quick charger (needs attention). Unit recently o'hauled by Kenwood. New display, antenna & nicads. Excellent condition $400. Dave VK3TDI. Ph: (03) 232 7492.

**KENWOOD TS-940S:** Excellent condition. Must sell. $3500 ONO. Call Sean Neylon VK3SN. Ph: (03) 318 3716 AH or (03) 521 1666 BH.

**KENWOOD TS-940 HF TRANSCEIVER:** includes auto ATU & general coverage rx. $3800 ONO. Brand new (still in box) never been used. Owner transferred overseas. Kenwood TL-922 Linear Amplifier. Never been used. $2000 ONO. John. Ph: (03) 794 8077 BH or (03) 232 6587 AH.

**VALVES:** New in boxes. 2C39A SHF transmitting. $30 plus P&P. Dick VK3AHT, QTHR. Ph: (03) 874 4967.

## FOR SALE — QLD

**ANTENNA TUNER:** Kenwood AT-200. Good condition, original carton, manual. VK4BIK. Ph: (071) 91 7317.

**FT-690R 6 METRE TRANSCEIVER:** New in carton. $450. Icom IC-22A 13 channels fitted good order. $160. Sony Umatic VO-2630 Video Recorder & JVC Tuner. Good order. $450. VK4KDK, Brisbane. Ph: (07) 800 1406.

## FOR SALE — SA

**TRANSMITTER:** 6V6G osc, 6V6dbr. 6V6 dbr, 807 PA driver to 829B final. 160m to 6m. Three pwr supplies. 1 switch operation with PS relays. Tx tubes: 4-65A, QE3-300, 4E27(813), 815, 829B & socket, VCR139 & socket, 5 Vintage Radios. B/C Grundig reel to reel recorder (valves) 200+ tubes. VK5LC. Ph: (08) 271 6841.

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# Wireless Institute of Australia

# MEMBERS SURVEY 1988

This questionnaire has been commissioned by the WIA to gather information from its members as to their views on the Institute, their current and future needs from the Institute, and their thoughts on *Amateur Radio* magazine.

Like most similar organisations in our society today, the WIA needs to continually improve its performance to keep pace with the rapidly changing perceptions and expectations of its members.

The WIA is, first and foremost, a service organisation and, as such, must be responsive to the needs of its members.

We need your help, as a member, to help us plan wisely for the future by telling us what you want and expect from your Institute.

The first section requires some general information about yourself, and is needed to equip the Institute to produce a statistical model of the *Amateur Radio* magazine readership base. This information will enable us to demonstrate to potential advertisers the worth of advertising in *Amateur Radio.*

Section 2 relates to *Amateur Radio* magazine — its cost, quality and readership.

The third section is concerned with how you see the Institute at present, and what you want from the Institute in the future.

The first questions are asking for facts about yourself.

The other questions ask for your opinions. On these questions, obviously, there are no right or wrong answers. What we want to know is just what you think. If you are not certain what your answer is, please give us the choice that appeals most to you at the moment. Please record any additional comments you may have about particular questions, or the survey as a whole. Such comments are often invaluable in interpreting your answers to other questions.

**This survey is strictly confidential! ! !**

Only overall results will be published from time to time in *Amateur Radio* magazine. ***No individual results will be published or disclosed!***

It is not compulsory to insert your call sign or membership number on the returned survey. However, anonymous returns will be ineligible for the gifts. Membership numbers may be obtained from your AR address label.

**MEMBERSHIP NUMBER:**

. . . . . .

OR

**CALL SIGN:** . . . . . .

***AMATEUR RADIO*** MAGAZINE ADDRESS LABEL

Bill Smith
1 Jones St
NoTown, 1234

140956 — Membership Number

## SECTION 1. PROFILE OF MEMBERS

**1.1 AGE GROUP IN YEARS** (tick one box only)

| | | | | | |
|---|---|---|---|---|---|
| 1 - 15 | ☐ A | 41 - 50 | ☐ F |
| 16 - 20 | ☐ B | 51 - 60 | ☐ G |
| 21 - 25 | ☐ C | 61 - 70 | ☐ H |
| 26 - 30 | ☐ D | 71 PLUS | ☐ I |
| 31 - 40 | ☐ E | | |

**1.2 OCCUPATION** (tick one box only)

| | | | |
|---|---|---|---|
| AGRICULTURE | ☐ A | RETIRED | ☐ H |
| CLERICAL | ☐ B | SALES | ☐ I |
| HOME DUTIES | ☐ C | SEMI-SKILLED | ☐ J |
| MANUAL — RURAL | ☐ D | STUDENT | ☐ K |
| MANUAL — OTHER | ☐ E | TECHNICAL | ☐ L |
| NOT EMPLOYED | ☐ F | TRADE | ☐ M |
| PROFESSIONAL | ☐ G | | |

If you are unable to fit your OCCUPATION into the above categories, please write your OCCUPATION below, using no more than 15 characters:

OTHER (specify): .....

**1.3 POSITION** (tick one box only)

| | | | |
|---|---|---|---|
| FOREMAN /WOMAN | ☐ A | SELF EMPLOYED | ☐ D |
| MANAGER | ☐ B | SUPERVISOR /LEADING HAND | ☐ E |
| OTHER EMPLOYEE | ☐ C | | |

**1.4 INDUSTRY** (tick one box only)
(Retired, unemployed and students indicate the industry you were/would like to be in).

| | | | |
|---|---|---|---|
| AGRICULTURE | ☐ A | FINANCE | ☐ O |
| AUTOMOTIVE | ☐ B | FOOD | ☐ P |
| AVIATION | ☐ C | FURNITURE | ☐ Q |
| CHEMICAL | ☐ D | INSURANCE | ☐ R |
| CIVIL | ☐ E | LEGAL | ☐ S |
| CLOTHING | ☐ F | MECHANICAL | ☐ T |
| COMMUNICATIONS | ☐ G | MEDICAL | ☐ U |
| COMMUNITY SERVICES | ☐ H | MINING | ☐ V |
| COMPUTER | ☐ I | PUBLISHING /PRINTING | ☐ W |
| CONSTRUCTION | ☐ J | REAL ESTATE | ☐ X |
| EDUCATION | ☐ K | REFRIGERATION | ☐ Y |
| ELECTRICAL | ☐ L | SERVICE | ☐ Z |
| ELECTRONIC | ☐ M | TEXTILES | ☐ 1 |
| ENTERTAINMENT | ☐ N | TRANSPORT | ☐ 2 |

If you work in the RETAIL industry, please indicate the relevant section of the RETAIL industry using no more than 20 characters:

RETAIL (specify): .....

If you are unable to fit your INDUSTRY into the above categories, please write your INDUSTRY below, using no more than 20 characters:

OTHER (specify): .....

**1.5 FORMAL QUALIFICATIONS** (tick one box only for your highest qualification)

| | |
|---|---|
| PRIMARY /SECONDARY (up to Year 10 only) | ☐ A |
| SECONDARY (Years 11 and 12) | ☐ B |
| TRADE | ☐ C |
| TERTIARY | ☐ D |

OTHER (specify): .....

AREA FORMALLY QUALIFIED IN ABOVE: .....
(eg. Business, Carpentry, Chemical, Electrical, English, Mechanical, Science, etc) using no more than 20 characters.

OTHER QUALIFICATIONS: .....

**1.6 MAJOR HOBBIES AND INTERESTS** in addition to amateur radio (tick no more than five categories)

| | | | |
|---|---|---|---|
| ANGLING | ☐ A | GARDENING | ☐ M |
| ANIMALS | ☐ B | GOLF | ☐ N |
| ARTS /MUSIC | ☐ C | MODELS | ☐ O |
| AVIATION | ☐ D | PHOTOGRAPHY | ☐ P |
| BALL SPORTS | ☐ E | POLITICS | ☐ Q |
| BICYCLING | ☐ F | RACING /HUNTING | ☐ R |
| BOATING | ☐ G | RACQUET SPORTS | ☐ S |
| CARS | ☐ H | RUNNING /BUSHWALKING | ☐ T |
| COLLECTING | ☐ I | SCUBA DIVING | ☐ U |
| COMPUTERS | ☐ J | SHOOTING | ☐ V |
| CRAFT | ☐ K | SNOW SKIING | ☐ W |
| FOOTBALL | ☐ L | WATER SKIING | ☐ X |

If you are unable to fit your HOBBIES and INTERESTS into the above categories, please write your HOBBIES and INTERESTS below, using no more than 15 characters:

OTHER (specify): .....

## SECTION 2. AMATEUR RADIO MAGAZINE

In 1988 Amateur Radio magazine is expected to cost you 63.2 percent of the $30.00 Federal Component of your membership subscription. This equals $1.28 plus postage per issue to your address.

**2.1 IS THE CURRENT RELATIVE COST TOO MUCH?** ☐ A

**OR**

**DO YOU WANT THE PRESENT AR QUALITY TO BE HELD CONSTANT IN THE FUTURE EVEN IF THE COST INCREASES?** ☐ B

**OR**

**ARE YOU PREPARED TO PAY A HIGHER SUBSCRIPTION TO FURTHER IMPROVE THE QUALITY OF PRESENTATION OF THE MAGAZINE?** ☐ C

**2.2 DOES ANYBODY ELSE, APART FROM YOU, READ YOUR COPY OF AMATEUR RADIO MAGAZINE?**

**YES** ☐ **NO** ☐

**IF YES, HOW MANY?** ☐

## FEDERAL COUNCIL QUESTIONNAIRE

# STRICTLY CONFIDENTIAL

The information provided to the Wireless Institute of Australia on this completed form will be kept **strictly confidential** and will **only** be used to compile statistical information for the benefit of the Institute.

## SECTION 3. CURRENT PERFORMANCE AND FUTURE DIRECTION OF THE WIA

Please read the following questions carefully and completely before answering.

**3.1 WHAT DOES THE WIA DO WELL?** (Tick no more than five relevant items in column 1 on the attached questionnaire sheet).

**3.2 WHAT DOES THE WIA NEED TO IMPROVE?** (Tick no more than five relevant items in column 2 on the attached questionnaire sheet).

**3.3 WHERE SHOULD THE EMPHASIS BE PLACED IN THE FUTURE?** (Tick no more than five relevant items in column 3 on the attached questionnaire sheet).

| FREE SERVICES | DO WELL | TO IMPROVE | FUTURE EMPHASIS |
|---|---|---|---|
| BEACONS AND REPEATERS | ☐ A | ☐ A | ☐ A |
| CONTESTS | ☐ B | ☐ B | ☐ B |
| CONVENTIONS | ☐ C | ☐ C | ☐ C |
| COURSES ADVICE | ☐ D | ☐ D | ☐ D |
| DOTC /GOVERNMENT LIAISON | ☐ E | ☐ E | ☐ E |
| EMC ADVICE | ☐ F | ☐ F | ☐ F |
| EXHIBITS /RALLIES /MEETINGS | ☐ G | ☐ G | ☐ G |
| HAMADS | ☐ H | ☐ H | ☐ H |
| HEADLINE NEWS — PHONE BBS | ☐ I | ☐ I | ☐ I |
| IARU LIAISON | ☐ J | ☐ J | ☐ J |
| INTRUDER WATCH | ☐ K | ☐ K | ☐ K |
| MORSE PRACTICE FACILITIES | ☐ L | ☐ L | ☐ L |
| NEWS BROADCASTS | ☐ M | ☐ M | ☐ M |
| OPERATING AWARDS | ☐ N | ☐ N | ☐ N |
| PROPAGATION PREDICTIONS | ☐ O | ☐ O | ☐ O |
| SAMPLE EXAMINATIONS | ☐ P | ☐ P | ☐ P |
| SPECIAL EVENT CALL SIGNS | ☐ Q | ☐ Q | ☐ Q |
| STANDARDS ASSOCIATION PARTICIPATION | ☐ R | ☐ R | ☐ R |
| STOLEN EQUIPMENT REGISTER | ☐ S | ☐ S | ☐ S |
| WICEN | ☐ T | ☐ T | ☐ T |

| PAID SERVICES | DO WELL | TO IMPROVE | FUTURE EMPHASIS |
|---|---|---|---|
| AOCP and NAOCP CLASSES | ☐ U | ☐ U | ☐ U |
| BOOK SALES | ☐ V | ☐ V | ☐ V |
| LICENSING and TECHNICAL ADVICE | ☐ W | ☐ W | ☐ W |
| MAGAZINE | ☐ X | ☐ X | ☐ X |
| NAOCP STUDY GUIDE | ☐ Y | ☐ Y | ☐ Y |
| QSL BUREAU | ☐ Z | ☐ Z | ☐ Z |
| RECIPROCAL LICENCE INFORMATION | ☐ 1 | ☐ 1 | ☐ 1 |
| SPECIALIST INFORMATION /NEWS SHEETS | ☐ 2 | ☐ 2 | ☐ 2 |
| TOWN PLANNING ADVICE | ☐ 3 | ☐ 3 | ☐ 3 |
| VIDEO TAPE LIBRARY | ☐ 4 | ☐ 4 | ☐ 4 |
| **FUTURE SERVICES** | | | |
| AOCP STUDY GUIDE | ☐ 5 | ☐ 5 | ☐ 5 |
| EQUIPMENT INSURANCE | ☐ 6 | ☐ 6 | ☐ 6 |
| EXAMINATIONS | ☐ 7 | ☐ 7 | ☐ 7 |
| MORSE TESTS | ☐ 8 | ☐ 8 | ☐ 8 |
| SPECIALIST NEWS BBS | ☐ 9 | ☐ 9 | ☐ 9 |
| OTHER (Name): ..... | ☐ 0 | ☐ 0 | ☐ 0 |
| OTHER (Name): ..... | ☐ ! | ☐ ! | ☐ ! |
| OTHER (Name): ..... | ☐ @ | ☐ @ | ☐ @ |
| OTHER (Name): ..... | ☐ # | ☐ # | ☐ # |

Thank you for completing this questionnaire, and showing your interest and concern about the future of the WIA and amateur radio in Australia. Please forward the completed questionnaire to: **Survey, Wireless Institute of Australia, PO Box 300, Caulfield South, Vic. 3162, by November 15, 1988.**

**(See also page 3, this issue AR).**

# ESSENTIAL Monthly READING

## No matter what area of electronics interests you,

CONSUMER ELECTRONICS NEWS
New Sennheiser headphones
aem project 4509
Low cost hard copy for the Commodore 64
Electronics brings more pleasure, more safety to leisure boating
Practical filter design – without fears or tears
semiconductor scene
aem project 3015
A broadband balun for HF antennas

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Incorporating Elektor Electronics

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*Edited and published by industry identity, Roger Harrison VK2ZTB*

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  – covering consumer electronics, topical technological and scientific fields, current issues and circuit techniques.
- **What's new in the market**
  – occasional features on new products and developments, giving topical and informative coverage of specific fields and product groups.
- **Practical computing articles**
  – a whole section each month devoted to electronics enthusiasts exploring computing and computing enthusiasts exploring electronics.
- **Hi-Fi, sound and video news, reviews & features**
  – independent, professionally conducted reviews from Robert Fitzell Acoustics; features from well-known writers like Dennis Lingane and Malcolm Goldfinch.
- **5 to 10 projects to build each month**
  – the best from our Australian designers and the cream from the British Elektor.
- **Monthly Project Buyers Guide**
  – each issue we detail where you can get the components featured in our projects as well as which firms are stocking kits of our projects.
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# THE NEW ICOM IC32AT, OVER. WITH ITS DUPLEX FACILITY, OVER. MEANS YOU WON'T HAVE TO TALK LIKE THIS, OVER AND OUT.

The IC32AT is the newest dual band handheld transceiver by Icom.

It has been designed with the most advanced VHF technology the electronics industry can offer.

And this little 2 metres and 70cm compact handheld offers full duplex facility.

Which means instead of a broken conversation, you can now simultaneously transmit on one band and receive on the other. Just like a telephone conversation.

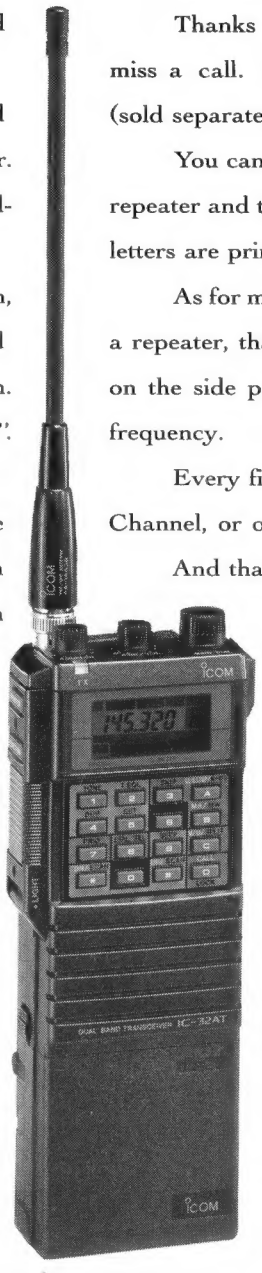
No longer do you have to wait for a long "Over". It's full "Break in".

And with its high output power, you can be sure your words are heard. The IC32AT uses a custom designed power module as the final amplifier. Which means this transceiver puts out 5.5W on 2 metres and 5W on 70cm.

So you will never be at a loss to make that repeater.

What's even more incredible, each of the twenty memory channels can store two frequencies: operating frequency and offset frequency are just a couple of examples.

The Programmed Scan function scans all the frequencies between two programmable scan edge frequencies, while the Memory Scan function scans all memory channels in succession, except, of course, those you lock out. In short, you can scan 2 metres, 70cm or all channels.




Thanks to the handy little pocket beep, you'll never miss a call. By installing the UT-40 Tone Squelch Unit (sold separately) the transceiver functions as a pager.

You can use the built-in DTMF keyboard to access a repeater and to make a phone patch. The key numbers and letters are printed large for quick and easy reading.

As for monitoring the input frequency when you work a repeater, that's as simple as pushing the Monitor switch on the side panel to open the squelch and check the frequency.

Every five seconds, Priority Watch monitors the Call Channel, or one or all the memory channels in succession.

And that's while you operate!

When you want to change the frequency or the memory channel fast, the Dial Select changes the 1MHz, 100kHz digit or the memory channel directly. One push of the button does it.

All these functions not only make the Icom IC32AT the most advanced dual band handheld transceiver available, but also very easy to use.

Call (008) 338 915 for your nearest Icom stockist today.

The telephone conversation in itself will be a very good demonstration of the IC32AT's duplex facility.

Over and out.

ICOM

The Ball Partnership ICO 0024

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